

ALL HANDS

MAGAZINE OF THE U.S. NAVY

FEBRUARY 1989





Men of USS *Nimitz's* (CVN 68) flight deck crew wear their tie-down chains while waiting for incoming aircraft. These "brown shirts" learn general aircraft cleaning and maintenance before moving on to more specialized work. Photo by JO1 Patrick E. Winter.

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ALL HANDS

MAGAZINE OF THE U.S. NAVY
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Photo by PH1 (AC) Scott Allen

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Front Cover: More than 12,000 people were on hand for the recommissioning ceremony of USS *Wisconsin* (BB 64) on Oct. 22, 1988, in Pascagoula, Miss. See story, Page 18. Photo by PH1 (SW) J. Alan Elliott.

Back Cover: Sea Cadets raise flags at the Navy Memorial. See story, Page 30. Photo by PH1 Chuck Mussi.

Navy Currents

Duty station swaps

Enlisted service members who wish to change their duty station, without permanent change of station orders, may find a "swap" is the answer.

A swap is an approved exchange of duty stations between two sailors willing to move at their own expense with no cost to the Navy. Requests must be approved by both chains of command. To be eligible to swap, both sailors must have:

- The same rate, rating and type of duty.
- At least nine months at their present command before submitting a swap request and be able to serve one year at the new command after the swap is completed.
- A projected rotation date greater than one year and expiration of active obligated service greater than eight months.
- No history of disciplinary offenses.
- The minimum evaluation marks as outlined in Chapter 16 of the *Enlisted Transfer Manual*.

For more information on swaps, consult the transfer manual or contact Naval Military Personnel Command (NMPC-471), at commercial (202) 694-4293 or Autovon 224-4293. □

'Dream sheets'

Detailers now have a tool that will do most of the billet checking and cross-checking for them — the Enlisted Personnel Allocation and Nomination System.

EPANS is a computer program that helps match people to billets. It considers the same factors a detailer would, such as duty preferences, current Navy priorities, permanent change of station funds, fleet balance, etc., and then presents the detailer with a list of people and billets that have been matched up. The final decision still rests with the detailer since there's no requirement that detailers must agree with an EPANS assignment proposal.

With EPANS, it's important that sailors maintain up-to-date duty preferences when they are due for a transfer. To keep preferences current, submit an Enlisted Duty Preference Form (NavPers

1306/63) soon after arriving at a new command, or whenever your preferences change.

Be sure duty preference forms are sent to Naval Military Personnel Command at least seven months before your projected rotation date. This is the time frame in which detailers use the EPANS to match personnel with billets.

For help in filling out duty preference forms, see your command career counselor. Send completed forms to: Commander, Naval Military Personnel Command (NMPC-471), Washington, D.C. 20370-5461. □

Adoption costs reimbursed

Active duty service members may now be reimbursed for adoption expenses up to \$2,000 per child for a maximum of \$5,000 per year. The reimbursement is part of a two-year test program recently implemented by the Department of Defense.

To be eligible, parents must adopt between Oct. 1, 1987 and Sept. 30, 1989. DoD defines the date of adoption as the completion date of the home study report or the date of child placement, whichever is later.

The program applies only to families of service members who have served at least 180 continuous days of active duty. This program covers most adoptions of children, up to the age of 18, by married couples or single service members, except for the adoption of stepchildren.

Adoption costs for children from foreign countries or with special needs are also covered. For more information, contact your legal assistance office. □

Selective reenlistment bonus

The selective reenlistment bonus program will be continued for FY89. Legislation was recently signed which authorizes and provides funds for the program. SRB requests should be made by following the latest SRB award level plan as explained in NavOp 81/88 and OpNavInst 1160.6A. □

Physical readiness results

In 1987, 94 percent of Navy service members who took the physical readiness test passed. Approximately two percent were diagnosed as obese and approximately five percent received medical waivers.

The goal of the Chief of Naval Operations is for all Navy men and women to meet PRT and body-fat standards by the end of FY89. Command PRT summaries provide the yardstick to measure physical fitness progress. Preliminary FY88 results indicate that more service members took and passed the PRT than in FY87 when only 85 percent took the test. □

Fleet 'A' school

If you are on your first enlistment and have been at your present command for at least 18 months, you may be eligible for advanced skills training at one of the 95 Navy "A" schools. Training at "A" school may incur additional obligated service. For more information, contact your local command career counselor. □

Air crew training program

The air crew training program is currently looking for volunteers. Hunting for enemy submarines, locating and destroying mines, jamming hostile missiles and rescuing downed aviators are just some of the missions of the enlisted air crew.

Enlisted air crew members serve with squadrons around the world and are eligible for flight pay, many selective reenlistment bonuses and special duty pay.

Recent changes to the air crew training program now include the opening of some NECs to women. For more information, contact your command career counselor or an enlisted air crew detailer. □

Earlier assignment notices

Enlisted detailers will begin writing orders earlier to allow sailors more flexibility in negotiating for new duty stations, thanks to recent

changes in the enlisted distribution system. New procedures will mean increased assignment flexibility, improved responsiveness and sensitivity to the needs of sailors.

Detailers had been allowed, without approval from a higher authority, to write orders anytime within a four-month projected rotation date window either at PRD, one month before or two months after. By expanding the window to five months (one month before or three months after PRD), more flexibility is available for an individual sailor to negotiate orders. This also provides detailers with a larger pool of people from which to draw in matching sailors to requirements and offers the potential for more local area moves. This results in greater opportunities for homesteading and for personal and family stability. However, the policy of rotating members assigned overseas on time will remain the same.

The enlisted requisition now looks at requirements seven months ahead, but this will be expanded to nine months. This allows more lead time to identify billets requiring high-level security clearances or long-term or specialized training, as well as allowing most personnel with PRDs that fall during or shortly after major deployments to negotiate orders prior to the next deployment.

The detailer's order-writing ability is tied to the availability of permanent change of station funds. Under the new system, if PCS funding levels are not yet authorized, detailers will be allowed to issue a guaranteed letter of intent, with funding data to be sent at a later date as authorization levels or budget approvals are received.

Based on deployment schedules, a detailing team will visit homeports before major deployments to write assignment orders for all affected personnel before their next departure.

These changes are expected to be implemented during the first detailer trip of 1989 and through the incorporation of these changes in the *Enlisted Personnel Manual*. The most effective means of ensuring the best match of people to billets remains the early submission of duty preference forms (NavPers 1306/63), but the improved flexibility in the detailing process will improve the readiness and personal satisfaction levels of the Navy. □

Family matters

Navy and Marine Corps Conference tackles tough questions about quality-of-life issues.

Story by JO1 Melissa Lefler

Top military and government leaders gathered at the Navy/Marine Corps Family Support Conference in Norfolk last November and agreed that the military cannot afford to ignore the needs of service men and women and their families. That honesty in confronting many serious military family problems was greeted with enthusiastic applause by more than 1,300 delegates from Navy and Marine Corps units and bases around the world.

"Our sailors and Marines make many sacrifices, and one thing they have a right to expect is that their loved ones are looked after," said Assistant Secretary of the Navy for Manpower and Reserve Affairs, Kenneth Bergquist, in opening remarks to the conference.

One of the conference's major speakers, Secretary of Labor Ann McLaughlin, addressed an important change in attitude regarding military families. "Never again will the armed forces operate under that old maxim that 'if they wanted you to have a wife, they would have issued

you one.'" In the future, family issues will be even more important to military operations, McLaughlin said, and she explained why.

"In the past, few wives of military men had jobs outside the home. Today, over half of all sailors' wives work, and by 1995, more than three-fourths of military wives will be working.

"Because of changing demographics, the Navy has become the nation's largest child care provider," McLaughlin said. To deal with this enormous responsibility, and other family issues, some 90 family service centers have been established at Navy bases worldwide since the first family conference ten years ago, in 1978.

The conference theme was, "Goals and Strategies for the Year 2000." The delegates brought with them a wide range of military and civilian expertise; there were physicians, lawyers, social workers, family service workers, and ombudsmen, as well as commanding officers, executive officers and lead-

ing chiefs. These representatives split into 10 "working teams," which approached this future-oriented, problem-solving agenda seriously.

In addition to child care issues, teams brainstormed for two days about housing, single parenthood, sailors' pregnancies, financial responsibility, stresses of overseas duty, military spouse employment, and child and spouse abuse, among other topics.

The groups presented their recommendations to the conference, including top leaders and congressional representatives, during a third-day wrap-up. Some recommendations were: don't send E-1s through E-3s overseas unless government housing is immediately available; deliver overseas orders to sailors and Marines no later than six months before transfer; and remove the stigma from homesteading — even to the point of encouraging detailers to allow people to homestead to create family stability in schools and jobs.

Many speakers echoed the labor

secretary's comments that the Navy had become the nation's largest child care provider and that child care was a high visibility issue. The child care group's recommendations included: converting vacant buildings to temporary child care centers, raising the pay of child care workers and establishing 24-hour day care centers overseas.

The group, recognizing that defense budget cuts would make it difficult or impossible to carry out some proposals, recommended the temporary centers and increased family home care of service members' children as an alternative to the 91 new child care centers McLaughlin had stated that the Navy needs.

But some top officials expressed concern over the trend of these proposals. ADM Leon A. Edney, Vice Chief of Naval Operations, while saying that the Navy does need to do a better job in the area of child care, also said that the idea of "warehousing" children in 24-hour child care centers made him uncomfortable.

In another issue dealing with military children's needs and rights, delegates and top leaders were able to reach a consensus. In the area of child and spouse abuse, Navy leaders immediately agreed to develop a more clearly stated family advocacy instruction with "teeth in it."

"In the area of child abuse, you will get a statement out of me about 'zero tolerance' of that performance in our Navy and Marine Corps," Edney emphatically stated. He added the Navy was willing to spend scarce money on the problem. "We are ready to trade some weapons to take proper care of our families."

Chief of Naval Personnel VADM Jeremy Boorda also expressed his determination to end child and spouse abuse when he said, "The people who work for me just need to make me smart enough to know what to do to prevent this, and I will do it."

Even in an era of "zero-growth" defense budgets, family support programs have to have top priority.

Dr. Sandra Rosswork, spouse and child abuse panel leader, offered a blueprint for a model "Parent Enrichment and Education Resource Service," PEERS for short, to prevent physical abuse of military children.

Rosswork, who presented her group's recommendations, listed some of the factors unique to military life that place military kids at high risk for abuse: teenage parents, isolation from the service member's own parents and friends, overseas duty, cultural shock and lack of education about how infants behave. The PEERS program focuses on mothers, and is proactive rather than reactive, including the services of a community health nurse, a home visitor, good prenatal education and respite care.

On the other side of the dependent care spectrum, over 14 percent of conference participants said they now "contribute significantly" to the care of aging parents, with larger numbers expecting to join that category in the next 10 years. According to a sample survey of 452 attendees at the conference, 73 percent strongly agreed that the aging parent issue will have a high impact on military retention in the 1990s.

Those same 452 survey respondents also ranked family issues such as health care, retirement, children's education, housing and spouse employment as issues that will affect voluntary separations in the year 2000, although pay was the number one factor, respondents agreed.

Master Chief Petty Officer of the Navy Duane Bushey said that sailors' financial problems create stress and hinder readiness. In some areas of the country, housing costs

make it almost impossible for junior sailors to budget money, Bushey said.

As the Navy becomes more concerned with increasing numbers of sailors' bankruptcies, the panel on military financial and consumer education recommended a renewed commitment to sending senior petty officers for financial management training, so that they may become the command, division or department expert, similar to division career counselors.

The working group on housing proposed making housing available not according to seniority but according to need. Some chiefs suggested that in expensive housing areas, base housing assigned to chiefs and senior officers might better be assigned to enlisted people.

Edney said that even in an era of "zero-growth" defense budgets, family support programs have to have top priority because recruiting and keeping qualified people will become more and more difficult as the Navy's traditional manpower pool — young males — shrinks. And Edney emphasized that he doesn't want to see family service centers taking over the jobs that should fall to commanding officers. "This is a conference about leadership," Edney said, summing up. "Family support is not a subject that belongs only to command master chiefs, ombudsmen and clinical psychologists. These people are an important tool for the commanding officers. But they can't — and shouldn't — replace the chain of command." □

Lefler is assigned to NIRA Det. 4, Norfolk.



It takes all kinds

*Students in mine warfare
come from many specialties.*

Story by JOC Robin Barnette, photos by PH1(AC) Scott M. Allen

Mine warfare and mine countermeasures are opposing activities. Mine warfare seeks to arm and plant mines so they can only be located the hard way: by blowing up a ship or sub. Mine countermeasures seek to ferret out mines and eliminate them harmlessly.

It's ironic that the people who work in both fields are trained at the same Navy school: the Fleet & Mine Warfare Training Center in Charleston, S.C.

At F&MWTC, minemen learn the basics in "A" school, while in another class, pilots learn how to plan and set up drops for minefields. Meanwhile, officers and sailors in ratings as diverse as boatswain's mate and operations specialist study minesweeping.

The "A" school teaches aspiring minemen basic electronics, introduces them to the publications and tools they'll use in their rating, and gives them hands-on training with a variety of mines.

"I like putting the mines together, because I like to work with my hands," said one student who was

close to graduating, Aviation Boatswain's Mate (Hydraulics) 2nd Class Scott Hawkins, who reenlisted in return for a switch to the MN rating. "I plan on putting in 20 years or more as a mineman. I felt I could do more than what I was doing in my previous rate."

Another student, halfway through the 14-week school, echoed Hawkins' enthusiasm. "Now I'm getting into actually building mines, starting to learn all the different parts of them," said Seaman Apprentice Mike Daniels. "I like the electronics and the mines themselves — how they work in different ways to get ships. You can do all sorts of different things with a mine. I chose mineman because it seemed like something out of the ordinary, and we don't go to sea too much — I like that aspect of it."

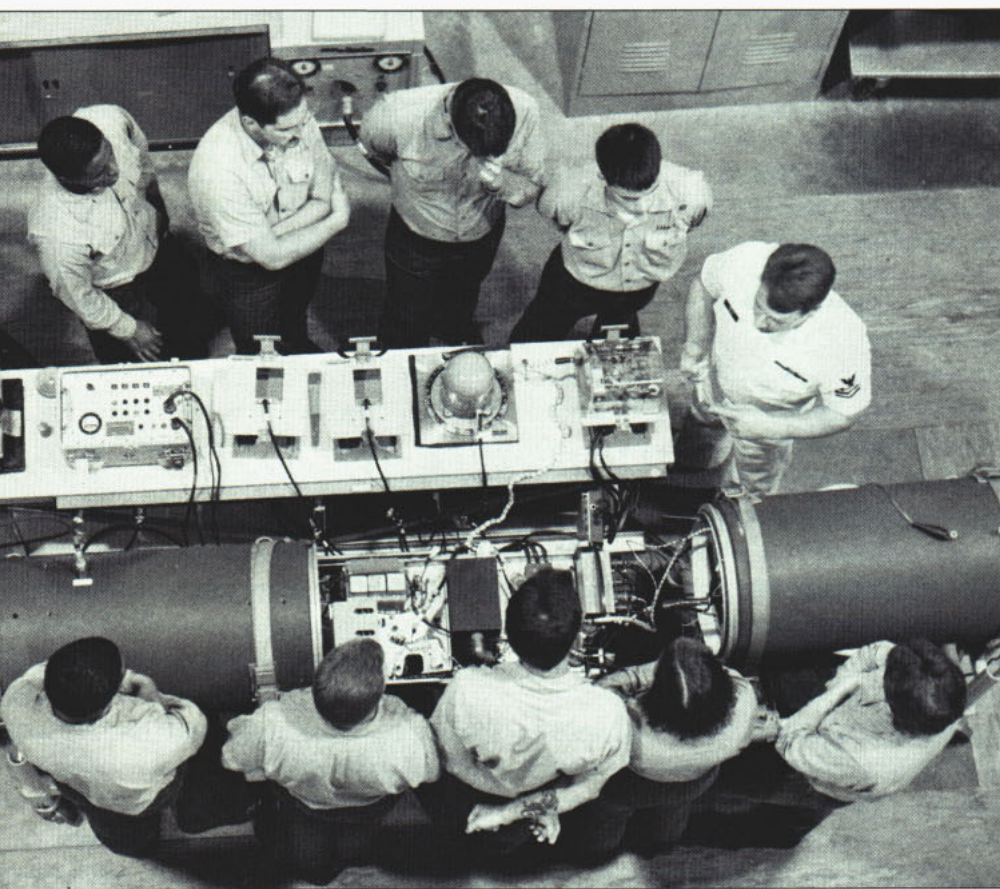
It's true that MN is not a sea-intensive rating, although minemen do deploy aboard ships for training exercises and for ops in such places as the Persian Gulf (see *All Hands*, March 1988). However, most of their billets are overseas shore duty.

"One of the unique things about our school is that the students get a chance to pick their orders," said MNCS Arthur Raymond, senior instructor for the mining department. The detailee provides a list of available billets and the top student gets first pick, the next student the next pick and so on. The overseas billets are popular. "Believe me, I hear about it when my students don't get all overseas billets. There are some stateside billets, but for the most part the students don't want them."

Hawkins was pleased with his orders to Scotland and Daniels was hoping to be stationed in Guam. Seaman Recruit Lisa Trevino, waiting to start school, was also looking forward to overseas duty. "I would like to be stationed in Guam or the Philippines," she said.

"C" schools for MNs are taught at F&MWTC, also. A 34-week course covers test-set maintenance, mine shop administration and weapons systems. Another eight-week course focuses on the Mk 60 *Captor*, a highly sophisticated anti-submarine mine, which releases a torpedo to





Far left: A student checks a connection. Left: "A" school students prepare to operate.

chase its target.

F&MWTC also trains officers in mine warfare-related billets. These students come from all fields. Officers enter mine warfare for one tour, then return to their surface or aviation specialties.

Pilots and flight officers of P-3s, A-6s, A-7s and F/A-18s learn to drop mines into preplanned minefields. Many also study tactics — mining plans and operations — and become staff advisors for Commander, Mine Warfare Command, the fleet commanders-in-chief and other high level commands. Other officers study mine countermeasures planning and operations.

Many of the sailors who study mine countermeasures at F&MWTC are electrician's mates, sonar technicians, electronics technicians, operations specialists and boatswain's mates. They train to work aboard the minesweepers and the new *Avenger*-class minehunters.

"I love minesweeping, I love the job. There's a lot to learn," said BM1 Ronnie Ford, an instructor who has worked in mine countermeasures for

17 years. In addition to typical BM duties, BMs on the countermeasures vessels handle all the equipment on deck. They rig, stream and recover the magnetic cables, acoustic gear, cable cutters and other equipment for sweeping operations. They also operate winches, cranes and booms to deploy the mine neutralization vehicle — a remotely operated submarine outfitted with a camera — and assist in mine handling if necessary.

Sailors in the other ratings form the combined combat systems group aboard minesweepers and hunters. They operate sonar and other equipment, interpret data and maintain the gear they work with. It's also likely that a first class petty officer will be in a leadership position he wouldn't have in a shop aboard a larger ship. The job on a minesweeper is a definite challenge.

"Take an EM1, for example," said CDR Gary Hammond, director of the mine warfare department. "If he's not the leading petty officer on a minesweeper, he's the second senior electrician on board. He goes on as a 1st class and he's put in charge of all

this gear that he's never seen before or maintained. In addition, he has several people working for him who are more skilled, because they've been there longer. He has to come up to speed quickly, while establishing himself in a leadership role."

"When I was on an MSO, there were only 33 men on board," said EMC(SW) Eddie Bridges, an instructor for the minesweeping EM's course. "You worked real close with everybody — and there were only three electricians on the ship."

The EM course, like the courses for the other ratings in the combat systems group, is in transition. The era of the older MSOs is transitioning into the new era of the *Avenger*-class and the other mine-hunting ships now being built. EMs have traditionally learned how to use and maintain the degaussing system for the MSOs and both magnetic and acoustic minesweeping systems. Future EMs will also learn the "care and feeding" of the newer ships' state-of-the-art gear, which has computerized controls and uses digital logic.

The students who pass through the training center and enter the world of mine warfare — whether it be as a mineman or in mine countermeasures — face big challenges and lots of hard work.

"Anyone who wants an easy job," said Hammond, "shouldn't be looking for a job in mine warfare." □

Barnette is the senior staff writer for All Hands. Allen is a photojournalist assigned to All Hands.

MoMAGgers

A mineman's life is a good life—if you don't mind getting your hands dirty.

Story by JOC Robin Barnette, photos by PH1(AC) Scott M. Allen

If you join the Navy and sign up to be a mineman, just what are you getting into? Sometimes that's a difficult question to answer.

"No one could tell me anything about it," said Chief Mineman Carily Whitener, reminiscing about her entry into the mineman rating in 1977.

"The recruiter didn't know anything, and the people at boot camp didn't know anything. I got to Charleston [S.C.] and I didn't know whether I'd be wandering around underground with a light on my head or what," said Whitener, laughing.

Minemen, of course, don't work underground. After graduating from "A" school in Charleston, MNs are assigned to one of 13 units or detachments in locations throughout the world to maintain and assemble mines and transfer them to delivery points — and they do it very quickly.

"Once a fleet commander-in-chief says when and where he wants to plant a minefield, all we need is the number of mines," said LCDR Will Dixon, operations officer for Commander, Mobile Mine Assembly Group, Charleston. "MoMAGs can immediately start building the mines, put the proper settings in them and deliver them to the ship or aircraft that will put them in the water."

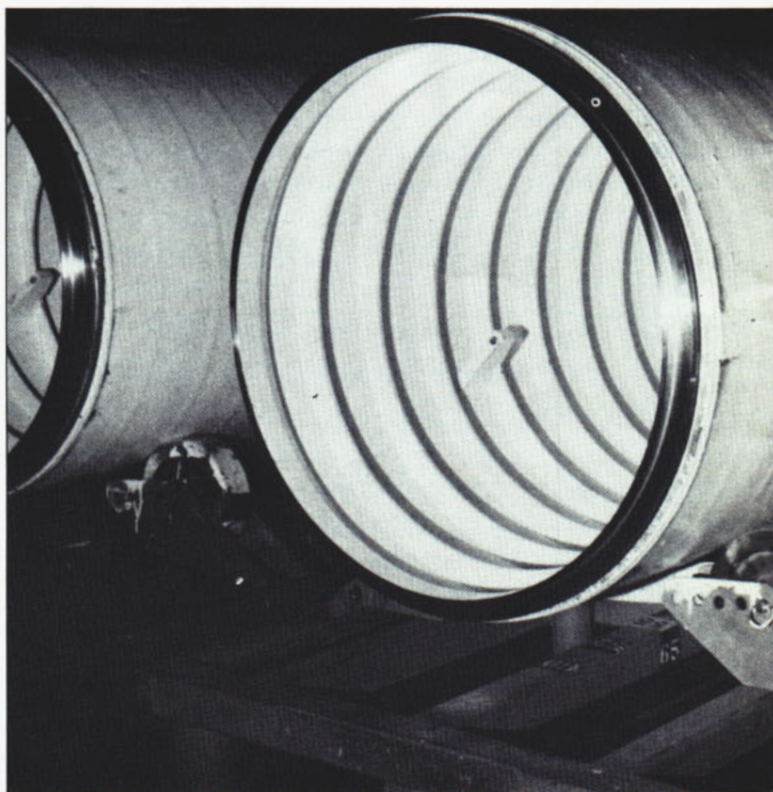
Minefields all over the world are planned in advance by the Mine Warfare Command. In the event of a war or other necessary military conflict, the MoMAGs know ahead of time what types of mines will be needed and have the supplies on hand — the computer "brains," ordnance, batteries, flight gear — to meet the requirements.

The MoMAGs regularly practice assembling mines. "We hold at least quarterly exercises among MoMAGs, building mines for certain minefields," Dixon said. "The MoMAGs are required to assemble mines at a

certain rate. We advertise those rates to the fleet CinCs, so they know how fast they can get a minefield in place."

The rate of production depends on the number of mines needed and what types. The mines are put together in assembly line fashion. "Most sites can assemble a *Destructor* mine in five minutes, so once you've got your line going, you can put them out faster than they can be loaded for shipment," said Dixon.

MoMAGs are located in Charleston; Yorktown, Va.;



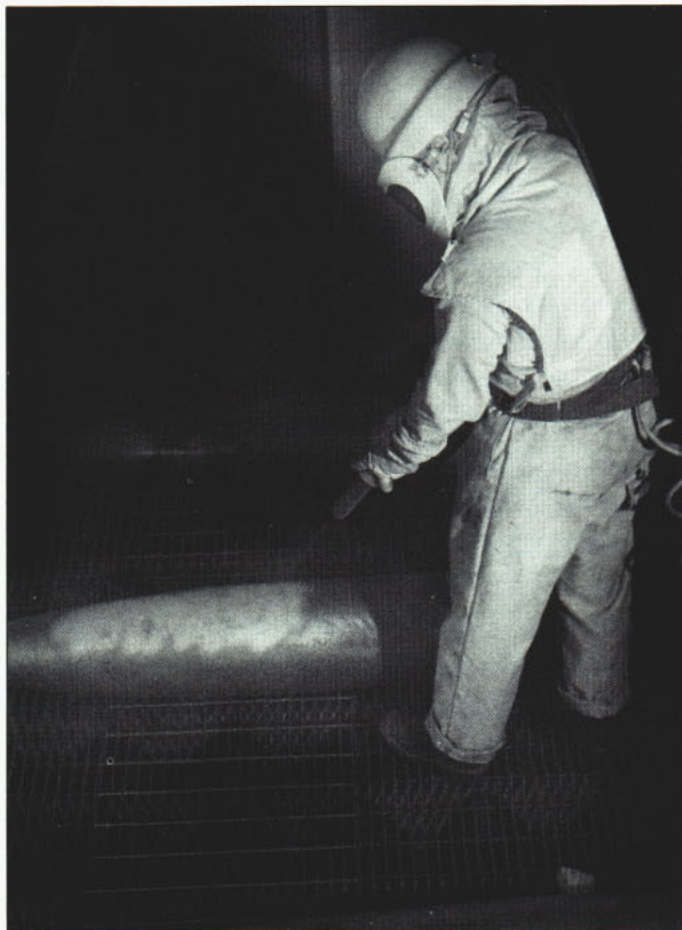
Colts Neck, N.J.; Lualualei, Hawaii; Seal Beach, Calif.; Machrihanish and Glen Douglas, Scotland; Sigonella, Sicily; Souda Bay, Crete; Subic Bay, Republic of the Philippines; Kadena, Okinawa and Misawa, Japan and Guam.

Mines are versatile — they don't come "ready-made" from a factory. Using component parts, MNs build mines to meet the needs of the fleet. They can outfit a mine with a variety of firing mechanisms, sensitive to the different "influences" that enable the mines to locate a particular target. Some mines are general-purpose bombs, converted for use as mines. The *Destructor*, targeted against ships, falls into this category. However, the anti-submarine *Captor* mine is actually more like a torpedo.

Mines can be laid by aircraft, in which case MNs must equip the mines with proper flight devices. Mines laid by submarines and ships require different preparation.

An MN arriving at a MoMAG has, of course, learned the basics of the rating at "A" school, but still faces a stiff qualification process. "It takes about six months to become fully qualified and certified," said MNCS Michael Whitener. "There's a weekly board — if MNs fail their initial certification, they have to back up and start that unit over again."

The MN community has approximately 600 members, of which less than 30 are officers. "By the time I made second class I knew just about everybody



Above: A member of MoMAG 11 sandblasts a mine casing. Left: MN3 Michelle Smith installs a hydrostatic device in the outer shell of a mine.



Members of MoMAG 11 connect the anchor to the main body of a mine.

in the community," said MNC Whitener, spouse of MNCS Whitener. "It's like living in a small town. If you're in trouble, you definitely have people coming to your aid. But it's also like a small town because there's sometimes a little backbiting or gossip. But that all just comes with it — it's got attractions and detractors."

The mineman rating was opened to women in the mid 1970s, and the community is about 15 percent female. "I have no qualms whatsoever about that," said MNCM R.D. Schommer, Force Master Chief for Mine Warfare Command and a 29-year veteran of Navy mine warfare. "The women work hard — they do their jobs. And sooner than people think, the mineman rating will be about 50 percent women, because we're a non-seagoing rating."

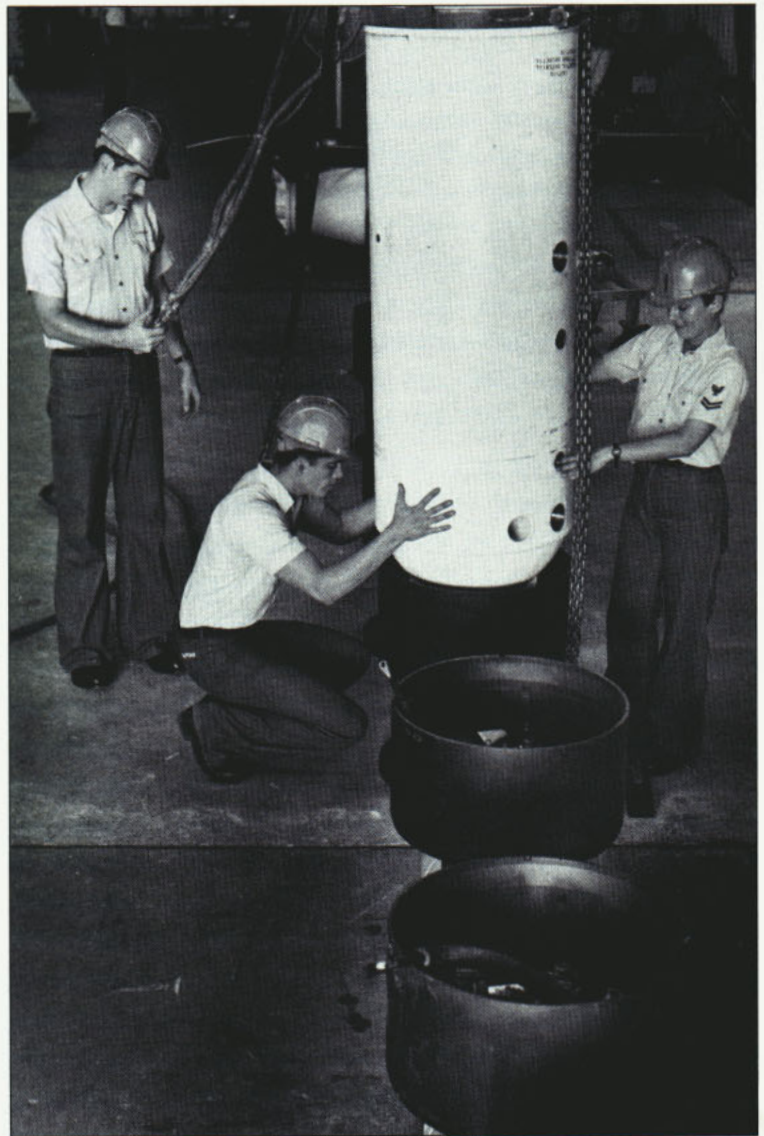
"Non-seagoing" doesn't translate into "light and easy," however. "When I first came into the rating, I succeeded because I was willing to do heavy physical work," said MNC Whitener. "When you're a seaman and you're out in the shop, you bust your butt. That's just the way it is. Everything about a mine is heavy, except for some small components. And it's dirty and greasy — and you can't worry about your nails."

"You need to be somewhat mechanically inclined, or be willing to bust your knuckles to get mechanically inclined," said MNC Coral Lee MacIntosh. "I'm still not mechanically inclined, but I know how to protect my knuckles a little better."

"It's a lot of physical work," said MN3 Carol Harvey, "but it's enjoyable to me. It's a lot rougher than I pictured it — it's not clean, not a desk job. But I don't like office work, anyway."

MacIntosh also stressed the need for MNs to work together. "You have to want to work closely with others, because we're in small units throughout the world," she said. "So if you don't get along with people, you're going to have a hard time in a unit."

MNCS Whitener elaborated, explaining that each department in a MoMAG works closely with the others. "Each shop doesn't just take care of its own when there's work to be done," he said. "We have minemen who go into the supply department, break out components and deliver them to the shops. Others go into the 'reefers' and break out the batteries for the mines. MNs go into the magazines and bring out the explosives we need. Quite often we have to furnish our own drivers, too. It's 100 percent teamwork."



The mineman rating is not exactly high profile. In fact, some sailors don't know any more about MNs than MNC Whitener did when she joined the Navy and wondered if she'd be working underground. She says that's part of what she likes about the rating.

"It's always good for conversation — you can really broaden people's horizons," Whitener said. She described an experience she had during a sailor-of-the-year competition. "I was in Washington, D.C., with a radioman, an electrician, a hospital corpsman and a yeoman. Nobody out of those four that I competed against knew what a mineman was, or had ever seen one!"

Even though the rating is little known in many circles, MNCM Schommer summed up the general outlook of minemen toward their small, close-knit community. "I think we have a damn good outfit." □

Barnette is the senior staff writer for All Hands. Allen is a photojournalist assigned to All Hands.

Mine warfare

ComMineWarfare looks to the future.

Story by JOC Robin Barnette, photo by PH1(AC) Scott M. Allen

"From the stone age to star wars" is how RADM Byron E. Tobin Jr. likes to describe mine warfare and mine countermeasures — MCM — in today's Navy.

Tobin is responsible for a wide range of mine weapons and countermeasures in his dual position as Commander, Mine Warfare Command, and the Chief of Naval Operation's Division Director for Mine Warfare.

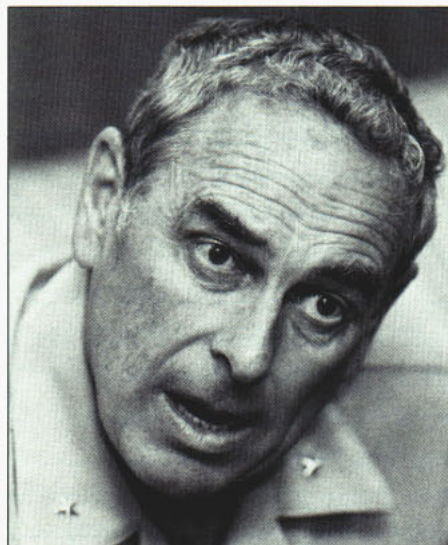
He compared the technological differences between "old-fashioned" mines used in the Persian Gulf and the modern mines in the U.S. inventory and the modern mine countermeasures capabilities that go with them. "The nature of MCM requires assets that can deal effectively with mines built for the Czar's navy in 1908 to those using the most modern electronics, sensors and propulsion systems.

"Mines now have the capability to move from their resting place to the target," Tobin continued. "Just as a modern soldier armed with a laser range finder still carries a bayonet, technology has improved our capability in mine detection and neutralization."

Mine warfare — which includes both mining operations and MCM — is an important tool, although it often doesn't get the publicity that other types of warfare get. Tobin said, however, that mine warfare has not been neglected in the Navy.

"During the Vietnam years the Navy had to make difficult trade-offs

between decreasing resources and expanding commitments," he said. "The nature of the Soviet threat required that above all we maintain a credible nuclear deterrent, adequate power projection forces and an effective ASW capability." He said that the numbers of traditional surface



RADM Byron E. Tobin Jr.

MCM ships — minesweepers — were reduced in the 1970s, but the introduction of airborne MCM assets offset that reduction by providing a rapid worldwide deployment capability. An increased role by NATO in MCM also helped.

Beginning in the early 1980s, the Navy began to examine the needed force mix and capability for new MCM forces. "The results of the study and programs to implement it are now entering the fleet," Tobin

said. "These are the MCM 1 Avenger-class ships, as capable an MCM platform as any that exists in the world today, and the MH-53E Super Sea Stallion mine sweeping helicopter. Also under construction is the first MHC 51 Osprey-class coastal mine-hunting ship.

"During this period we also introduced several new mines, including Captor, which is an advanced anti-submarine mine. Further, existing mines have been continually improved as new technology became available. Even more capable mines are under development. In short, the Navy is committed to an effective mine warfare program."

Tobin looks at the future of mine warfare in two ways. "First, we will continue to improve our traditional way of doing business," he said. "That means improvements to our mine warfare tactics and equipment, support for our ship and helicopter procurement and development of new and improved mines.

"Secondly, we must chart the course for the future *now*," he continued. "By that, I mean the nature of mine warfare in the year 2010 and beyond. For example, even as the Avenger class is coming on line, it is not too early to begin thinking about what its replacement will be. The same is true of mines. We are limited only by our imagination." □

Barnette is the senior staff writer for All Hands. Allen is a photojournalist for All Hands.

Waiting weapons

The ingenious (and devious) world of mines

Story by JOC Robin Barnette

Mines were considered . . . well, "ungentlemanly" in Revolutionary War times. And no doubt the British used some ungentlemanly words to describe those pesky rebels who floated the first sea mines down the Delaware River into the King's fleet.

Even though this initial attempt to destroy British ships failed, the invention of mine warfare, in 1777, set in motion a chain of events that reverberates into the Persian Gulf of the 1980s.

Since then, mines have proved to be an extremely effective method of warfare. Sailors on USS *Samuel B. Roberts* (FFG 58) learned first hand that mines don't have to be sophisticated to be effective. "That was an old-fashioned mine, but it worked," said CDR Gordon Hobgood, head of minefield planning, Mine Warfare Command, Charleston, S.C. USS *Roberts* struck a mine in the Persian Gulf last April and nearly sank.

Hobgood is considered an expert in mine warfare tactics; he was a key player in the mining of Haiphong Harbor during the Vietnam War.

"The objective of mining is to alter the geography of the ocean in your favor by either denying an area to the other side, or by forcing him to come to where you have the advantage," Hobgood explained. "For example, in the ocean there are areas in which I cannot hunt for submarines,

because the water conditions work against me. I want to deny that area to the other guy, so I mine there and force him out into better water."

The term "mine" might conjure up a mental picture of the typical World War I era weapon. "Everybody has this idea that a mine is a round basketball-shaped thing with horns," said Hobgood. "Iran happened to use that style in the Persian Gulf and that has reinforced the concept."

This older style weapon is a moored contact mine. The "horns" that jut out from its body are made of a soft material such as lead, and contain either a chemical or wiring that acts like an on-off switch. Hobgood explained that if you strike the horn — break it or bend it — you've completed the firing circuit for the charge, and the mine explodes.

"Contact mines have pretty much gone out of the U.S. inventory," said Hobgood. "We have gone to influence mines — magnetic, acoustic, pressure, seismic or a combination of those."

An influence mine doesn't need physical contact with a target — a ship or submarine — to trigger an explosion. The mine is equipped with a detector — for example, a magnetic influence mine has a magnetometer. The magnetometer acts something like a light switch: it is sensitive to the changes in the lines

of magnetic force caused by a large metal object such as a ship moving through the water and closes the electric firing circuit when it recognizes a target.

An acoustic influence mine is sensitive to noise. The prop on a ship makes noise, as do engines, fans and other equipment. The detector "hears" a ship and sends an electrical signal to the firing mechanism for processing and analysis. The mechanism is programmed to evaluate the signal and determine if it is from a valid target. Noise from marine life and other sources not likely to be useful military targets is ignored.

"We're looking for a specific noise," Hobgood said. "If we know that the target has a piece of equipment that operates at 200 revolutions per minute, that can be figured out mathematically to a value and I can set my mine for that target."

Distance from the mine to the target is also a factor that must be taken into account with an acoustic mine. "If the ship is too far from the mine, you won't have enough explosive force to have the desired effect," Hobgood said. The acoustic detector has settings from "coarse" to "sensitive." "If it's too coarse, the target may get through because it never satisfied the sound value the mine was looking for," he said. "If it's too

sensitive, the mine may fire too soon and I'll get nothing." That's what happened when mines were laid in the Red Sea by terrorists in 1984. Apparently those mines were set too sensitive, because they went off before ships got close enough to be damaged.

Influence mines can also be pressure-sensitive. As the hull of a ship goes through the water, the bow and stern create a positive pressure in the water, while the body of the ship exerts a negative pressure. The pressure mine has a detector that is pro-

grammed to look for a pressure pattern. "It's looking for two things — a positive and a negative," said Hobgood. "So wave action or a storm won't cause this mine to go off. It's also looking for a specific interval, its timing — how long it takes to go from positive to negative. If it doesn't meet the time parameters that I've set in it, the mine decides it's not a target."

These influence mines — magnetic, acoustic and pressure — have all been used since World War II. The seismic influence mine was devel-

oped during the Vietnam War. "The seismic works on the same principle as the mechanisms for detecting an earthquake," Hobgood said. "The mine is looking for movement of the earth. If you're standing by the road and a big truck goes by, the pavement shudders a little bit. What a seismic mine requires is that the ship pass in close proximity." A violent storm won't satisfy the mine's seismic requirement because the wave action is on the surface: the bottom of the river or harbor doesn't move. The bottom *will* move, however, when a large ship passes through shallow water.

Mines can be sensitive to a combination of influences: magnetic and acoustic, or seismic, magnetic and acoustic, for example. By using several parameters, it's possible to aim for a specific target.

But the very characteristics, and combinations of characteristics, that make mines so effective when used offensively also make them difficult to defend against. "Sweeping these sophisticated weapons can be a real chore," said Hobgood. "We have devices that we can tow, either by ship or helo, over a suspected minefield. Those devices can mimic the influence that the mines are targeting — magnetic, acoustic, whatever. But some influences are harder to mimic than others," he added. "Take for example pressure influences — about the only way to imitate the pressure created by a 10,000-ton ship is by sending a 10,000-ton ship through the mine field. That usually means expendable vessels — 'guinea pigs,' you might say. It's a tough problem."

Another option in mine warfare is use of controlled mines. These mines are planted in the mouth of a harbor and a person onshore deton-



U.S. Navy photo

Left: Several contact mines on the deck of the captured Iranian mine-laying ship *Iran Ajr*.

Waiting weapons



Left: Germans lay mines in Norwegian waters during World War II.

ese troops was a prime example of the psychological effects of mine warfare. "We went in to mine, let them see us do it and then made an announcement about it," Hobgood said. "Ships did not come or go from the harbor after that, because they knew mines had been planted. In a case like this, I don't really care if I catch anything. You know something is there, you take your chances if you decide to transit the area. The enemy usually won't take that chance unless he is desperate."

The United States is a signatory to an international treaty that calls for the nation that laid mines to come in and sweep them, once hostilities have ended. But the Haiphong mines continued to play an important role after the cease fire was signed. When the Vietnamese government was reluctant to release U.S. POWs, the Navy stopped the minesweeping effort in Haiphong. "Vietnam said, 'Hey, we really want you to come back and finish this.' We said, 'No, we're not coming back until you start giving us our POWs back,'" said Hobgood. "The psychology was very real to them, and to the world. No insurance company would insure a ship to go into Vietnam. Vietnam had to give us what we wanted before we would give them what they needed. We saw psychology at work, not against the hulls, but against the country."

But the bottom line of mine warfare is action against hulls. What happens when a ship actually triggers a mine? How is it damaged when the mine doesn't touch the hull?

When the explosive chain occurs, there's an initial gas expansion. The size of the expansion is based on the depth of the mine and the amount of explosive weight. "It expands very rapidly," Hobgood said. "But pres-

ates them manually. "There are wires running out to each one of the mines. If one of our ships comes by, we let it through," said Hobgood. "But when an enemy ship comes through, a switch is thrown to close the contact — that's a controlled mine. You can't very well do it in open ocean, but it works fairly well in harbors."

Mines can also be set to count ships. "Let's say I pick the number five," Hobgood said. "The first ship through, the mine doesn't see, so that didn't count. The next one through it sees, but it doesn't explode. The counter moved one click down. Then the minesweeper comes out — it thrashes around the mine and it gets two more clicks. That's

three. A destroyer comes out, which satisfies the mine's setting and that's my fourth click. Now the carrier comes out — the mine is satisfied and it goes off."

Mine warfare can effectively destroy or disable ships and submarines. But it also works well in psychological warfare. "I don't have to sink a ship," Hobgood explained, describing how the mine community defines success. "In World War II the Army Air Corps counted the number of bombs dropped. In Vietnam the press got the Army into body counts. But we don't talk in terms of tonnage sunk. We don't have to sink *anything* to be successful."

The mining of Haiphong Harbor to prevent resupply of North Vietnam-

U.S. Navy photo

sure, due to depth, is acting against that expansion." He compared the gas expansion in the water to blowing air into a balloon. You can only blow so much air in before the skin of the balloon bursts, or the air rushes out into your face.

"It reaches a point where the water pressure is greater than the gas pressure. That forces a reversal of the process — a contraction of the gas bubble," he continued. "At certain water depths, this occurs several times before it comes in contact with the ship. The bubble increases momentum each time this happens. It gets faster and faster, which means that it's going to hit harder." When the gas bubble reaches the ship, there's nothing to absorb the shock except the hull.

"It can blow a hole in the side of the ship — it can break the keel — it can disrupt the machinery," Hobgood said. "It might knock the propeller shaft four feet over, or the boiler may be shifted so the pipes are ruptured and there's live steam going into the ship. Maybe I didn't get lucky enough to sink him, but I knocked out all his electronic gear, because it's very sensitive to movement. Now he's not a combatant anymore. I didn't have to sink him."

Mines can be moored — anchored

to the ocean floor with the mine floating at a pre-set depth — or rest on the bottoms of harbors or rivers. They can be buried in the bottom, also. Mines can be planted by aircraft, ships or submarines for defensive or offensive purposes. In defense, for example, mines can keep unfriendly forces from entering friendly ports; friendly forces can follow a secret path through the minefield. Used offensively, mines can keep an enemy from exiting or entering his own ports.

No war lasts forever, of course, and minesweeping is a slow, costly process that doesn't guarantee all mines will be found. This lesson was learned following World War I — the British and Americans laid over 72,000 mines in the North Sea Barge across a 250 mile stretch from Scotland to Norway against German U-boats (see *All Hands*, April 1986, Page 16). All those mines have not been recovered, and some could (theoretically, at least) still be a threat.

To ensure that modern mines aren't a permanent problem, they are programmed to scuttle after a certain period of time. "Scuttle means nothing more than having it fill up with water and drift to the bottom," Hobgood said.

An even better way to eliminate the threat is to instruct the mine to self-detonate at a certain point, for example when the battery has drained sufficiently so that it can't perform its mission. "Electrical power forces two contacts apart, and when the power drains, the contacts close and the mine goes off harmlessly," Hobgood said. "I may wish to detonate, or 'sterilize,' a minefield because I achieved my objective during a conflict, and I presumed we were going to win. Now I want to send our landing force over there, and I don't want to lose anybody. So now at a pre-set time — not exactly noon — but I can safely say after a certain time, there should be very minimal risk."

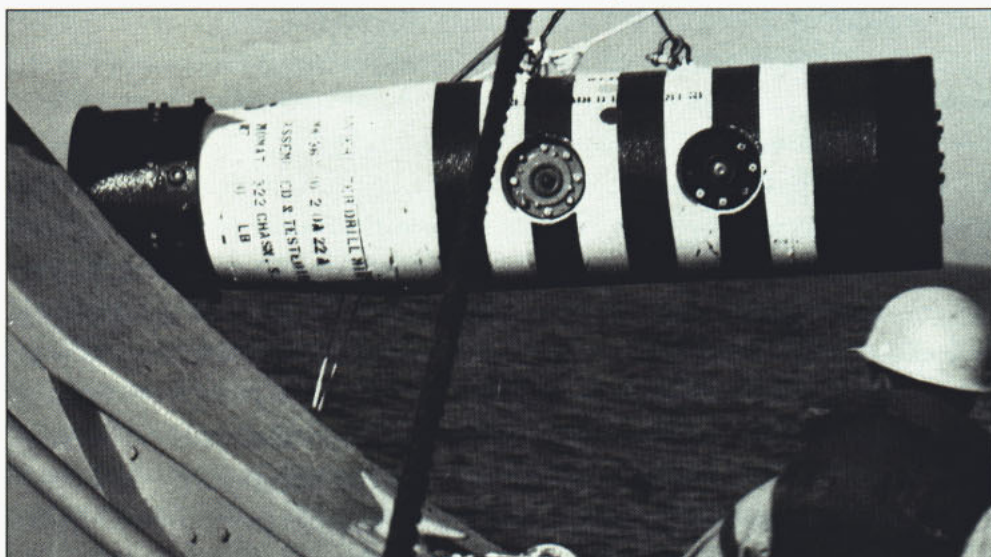
All ships and submarines are vulnerable to one extent or another to mine warfare. "That's what scares people most — there's nobody pulling the trigger on the gun," said Hobgood. "A mine doesn't know a friend from an enemy. But a smart minefield planner does," he added.

Mine warfare has come a long way since those first "ungentlemanly" sea mines were set adrift in 1777. It has played an important role in every major war the United States has been involved in, from the Civil War right through the Vietnam War. And mines are bound to play a role in conflicts around the world for years to come, just as they've been a key part of events in the Persian Gulf.

"Mines are cheap," concluded Hobgood. "They're what I call the poor country's weapon of choice. And a mine doesn't *have* to be sophisticated — it just has to work."

Ask the sailors of "Sammy B." □

Barnette is the senior staff writer for All Hands.



U.S. Navy photo

Left: A Mk 36 bottom influence mine is hoisted over the side of a minesweeper during operations off the coast of Charleston, S.C.

EOD



When explosive ordnance disposal units went to the Gulf, they had their hands full.

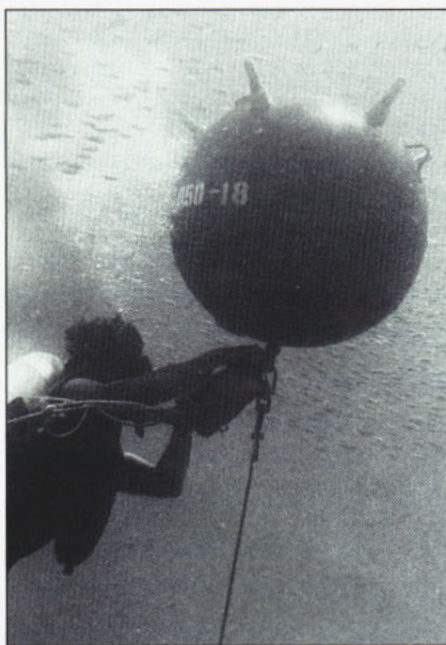
Story by PH1 Chuck Mussi

During World War II, the Navy laid dozens of floating contact mines along the U.S. Atlantic Coast to protect our own ports from enemy incursion. Almost forty years later, in 1979, one of those mines was caught in a Chesapeake Bay fisherman's net — ominous testimony to the perseverance of a weapon that waits (sometimes for decades) for its victim. A Navy explosive ordnance disposal team came to the rescue, disarming the mine and averting a potential disaster.

Nine years later, CWO 4 Stephen Neill, wiser for that Chesapeake Bay incident and many similar experiences, found himself leading another EOD team against some mines not so different from the one he faced in Maryland waters. But this time the stakes were higher — the team would be diving on freshly laid foreign mines, something a Navy EOD team had not done since the Vietnam conflict. And the scene of operations was halfway around the globe — in the Persian Gulf.

Neill and his detachment of six enlisted men from Naval Amphibious Base Little Creek's EOD Mobile Unit 2 set out to meet the challenge. They traveled, not on a regular Navy vessel, but on a "craft of opportunity." Neill and his men would be

charged with support of mine-hunting and neutralization efforts necessary to keep the Persian Gulf open. They were key players in the success of Operation *Earnest Will* — U.S.



U.S. Navy photo

Navy ships escorting reflagged oil tankers.

Neill's unit was one of four that served in the Gulf in search of mines. Unit 6 of Charleston, S.C., Unit 5 from Subic Bay, Republic of the Philippines and Unit 3, San Diego, all rotated through duty in

the Mideast, serving anywhere from 30 days to six months at a time.

At stake were millions of gallons of oil and, more importantly, the lives of thousands who shipped or escorted that oil down the narrow track along the edge of the Iran/Iraq war zone that the tankers can use for passage through the Gulf.

Some of the mines that had to be disposed of had broken their moorings and were floating in the sea, making the job of placing an explosive counter-charge on the mine an extremely dangerous operation. In addition, the team was required to make deep dives to locate and dispose of improperly moored mines still attached to their anchors on the bottom. These dives proved invaluable as the first operational experience with EOD's new Mk 16 underwater breathing apparatus, a closed-circuit, mixed-gas scuba, enabling users to dive down to 200 feet.

Even with the latest equipment EOD team members must handle mines with extreme care. Salt water can cause the lead horns of a contact mine to become brittle; the slightest brush against them by an unwary diver can mean certain death.

But mines aren't the only dangers for swimmers in the Gulf. The waters are infested with six-foot-



U.S. Navy photo

long poisonous water snakes with venom deadlier than a cobra's.

And, of course, diving itself, even under the best of circumstances, is always risky business.

Clearly, looking for mines in the Gulf was a deadly affair.

Yet Neill and his people not only looked, they found what they were looking for. A total of 16 mines were discovered in 90 days. In one day, the Unit 2 team found and destroyed five mines — thereby breaking a record for live mine counter-detonation that had stood since World War II. As one EOD team member said, "It was great to finally get the opportunity to

do what we have been training to do for years."

Careful — and thorough — training is the key to success in this business. The training is long, the dangers are real and the duty is hard.

But the rewards are there — not just in special pays, but also in the form of shared *esprit de corps*. The ultimate reward comes from performing a difficult mission well.

"The hands-on experience — operating 90 days in a war zone — that we have received will be of tremendous value to us and the Navy in the future," said Neill. "We were just happy to get a chance to do it." □

Opposite: Mobile EOD Unit 2 team member gets hands-on experience. Above: An EOD technician dives on a mine marked by the Iranians for the "USA." The mine was laid at about the same time as the mine that nearly sank the USS *Samuel B. Roberts* (FFG 58).

The EOD community is seeking dedicated, aggressive men and women. Call ENCM Thiel (NMPC 401D) at AV 224-1091 (commercial (202) 694-1091). Officers call LCDR Destefano (NMPC 413) at AV 224-8327.

Mussi is a photojournalist for All Hands



Photo by PH1(SW) J. Alan Elliott

...and then there were four.

‘On, Wisconsin’

Story by LCDR Carrie Hartshorne

As you walk the decks of this mighty ship, you can't help but remember the thousands of crew members who have served aboard her with honor during World War II and the Korean conflict. On Oct. 22, 1988, USS *Wisconsin* (BB 64) became the fourth and last of the *Iowa*-class battleships to be reactivated and returned to active duty.

The first of these four battleships to be modernized was USS *New Jersey* (BB 62), which returned to the

fleet in December 1982. USS *Iowa* (BB 61) was reactivated in April 1984 and USS *Missouri* (BB 63) joined them two years later.

Many important modernizations were completed before *Wisconsin* was ready to rejoin the fleet. The battleship's three turrets, each housing three 16-inch guns, have been refurbished. *Wisconsin's* nine guns can propel a projectile the weight of a small car as far as 23 miles, and that shell can leave a crater about

half the size of a football field.

Wisconsin's weapons systems have been upgraded to augment the fleet's latest tactical offensive and defensive preparedness. A new electronics suite was installed to enhance communication, detection and electronic warfare capabilities. Her propulsion system was upgraded to allow the ship to burn the distillate fuel the Navy currently uses. This upgrade will enable *Wisconsin* and her sister ships to refuel smaller



Opposite: Bow view of USS *Wisconsin*. Left: Sailors climb the aft brow of the ship. Below: Aerial view of *Wisconsin* under tow for sea trials.

ships during deployments. The battleship carries 2.2 million gallons of fuel.

The work aboard *Wisconsin* has included the installation or refurbishment of almost 1 million feet of electrical cable, 4,500 fluorescent lights, 2,000 tons of steel structure, more than 350,000 feet of pipe, 5,000 valves, 1,500 sleeping units and the application of 40,000 gallons of paint.

The first battleship *Wisconsin* was commissioned in 1901. She was armed with four 13-inch, 14 6-inch and four 3-inch guns and had a displacement of 11,552 tons. Despite her size and capabilities, she was destined never to fire a shot in anger before her decommissioning.

Launched on December 7, 1943, the present *Wisconsin* saw action in the Pacific theater of operation, including service with ADM Halsey's 3rd Fleet and during the reoccupation of the Philippines.

At 887 feet long, 108 feet wide and displacing 45,000 tons, the refurbished *Wisconsin* will carry a complement of 1,575 officers and crew. She will be the largest ship to be homeported at Naval Station Ingleside, near Corpus Christi, Texas. Until the new homeport at Ingleside is completed in 1990, *Wisconsin* will be temporarily homeported at Naval Station Norfolk. □

Hartshorne is assigned to the Navy Office of Information, Southeast, Atlanta, Ga.



Photo by LCDR Lynn Howell

The Navy's landlord

NavFacEngCom: Supporting the fleet, housing the family, protecting the environment

Story by Marie G. Johnston

"When you go to bed at night, you never know what you're going to wake up and face the next morning when you're dealing in the world of public works," said RADM Benjamin F. Montoya, Commander of Naval Facilities Engineering Command and Chief of Civil Engineers.

Most people feel a certain degree of uncertainty about their jobs from time to time, but for the public works officer, the daily chore of keeping Navy bases running and operating requires a special level of perseverance, patience, determined leadership and constant attention to detail.

"Just recently we had a 16-inch waterline burst in the Washington Navy Yard that flooded the basements of two admirals," Montoya said with a laugh. "Now, if that isn't terror for a public works officer, then there is no such thing as terror in this world."

"In broad terms, we maintain utility systems, transportation systems and vertical structures, which includes the buildings, waterfront facilities and housing," said Montoya. "You could say we cover the world with engineering and construction capability through our engineering field divisions and public works centers — all to carry on the Navy's day-to-day business."

As commander of NavFacEngCom, Montoya supports the Chief of Naval Operations in providing the Navy with the new facilities it needs to meet the Navy's mission and justifying those needs to Congress. The organization plays a significant role in establishing the Navy's requirements, plans and designs for those facilities. "That's only the beginning of our job in support of the fleet," he added.

This massive job is accomplished with an organization that includes

approximately 20,000 civilians, 1,500 naval officers and NavFacEngCom's contingency military arm of 12,000 Seabees. "We spend about \$2 billion a year in military construction funds throughout the world for the Navy and Marine Corps," said Montoya. "Another \$2.5 to \$3 billion a year is spent to manage maintenance, purchase utilities, and to operate and maintain our roads, runways and other facilities."

"Some of our work is very glamorous," said Montoya. "I consider the planning, design and construction of the homeports to be a glamorous piece of NavFacEngCom work, because it's very simple to explain how a new base supports a fleet. When you're building a new base for new Navy ships," Montoya continued, "everyone's morale and enthusiasm is very high. The public is interested and you find a certain euphoria in places such as Galveston and Ingleside, Texas, and Mobile, Ala."

Maintaining existing facilities, however, can sometimes be less than satisfying and the feeling of euphoria found at new bases may not translate to a place like San Diego which has over 100 ships and places tremendous demands on the shore staff. "Sometimes our people feel frustrated and depressed because they don't have enough people, or they don't have enough money to provide the kind of support that they feel the Navy should have," said Montoya. "Therefore, our people need to fully understand the Navy's mission, and properly prioritize our scarce resources to provide the maximum support of the fleet."

Providing and maintaining family housing is just one part of the NavFacEngCom mission, but it has a great impact on the fleet.

"In the field of family housing, the Navy is really an 'absentee-parent' type of organization," said Montoya.

"When sailors leave for sea duty, they must be assured that their spouses and children are left behind in good hands. Otherwise, they aren't going to be effective at sea, particularly if they are getting letters from home saying, 'This doesn't work or that doesn't work.' So I tell my people, 'You're fortunate that you get to go home every night. Remember, you're supporting people who don't have a spouse at home.'"

NavFacEngCom's duties vary from place to place. San Diego, for example, is currently served by a public works center with 2,000 civilians and about 30 officers. "At the Naval Station in San Diego, our public works center provides the crane service to unload the ships," said Montoya. "When a ship comes alongside, her sailors tie her up, but once that ship is berthed, the public works people take over — providing hookups for telephone, sewer system and shore power. We also provide the trash containers and the vehicle support — which we rent to the ship — pickups, vans and sedans. We provide the ship with its umbilical cords, its connections to the shore establishment."

NavFacEngCom also manages the Navy's environmental programs ashore, advising all shore commanding officers on how to comply with environmental laws governing water and air pollution, hazardous waste problems, pest control and oil spill cleanup.

Through its natural resource program, NavFacEngCom ensures that in the course of building new facilities, their environmental engineers and natural resource personnel prepare the environmental documentation that the law requires. "We build facilities that are sensitive to today's rules and natural resource concerns," said Montoya.

"The best examples that I can give

of the Navy's sensitivity to these issues is the construction of our submarine base at Kings Bay, Ga., and the new homeport at Everett, Wash.," he said. "In dredging the channel for submarines going to Kings Bay, we limit the dredging to certain times of the year to make sure that we are not taking anything off the bottom during the heavy migration season of the endangered sea turtles. We have hired a natural biologist who rides the bridge of the ship looking for turtles. If turtles are seen on the surface, the dredging is shut down immediately."



Portal crane (P 63) at Pearl Harbor Naval Shipyard.

In dredging for the new homeport in Everett, the engineers were soon discussing an item known as a "fish window." "The fish window in Puget Sound happens to be from about June 15 until the early part of November," said Montoya. "That's the time of the year when the salmon are *not* migrating — they aren't coming through to spawn. We

are not permitted to dredge when that's going on."

Another facet of NavFacEngCom is the research and development facility, the Naval Civil Engineering Laboratory at Port Hueneme, Calif. (see Page 26.) A major effort there is in the development of new construction materials. They also handle the research and development of physical security devices and work on solutions to environmental problems. For example, the lab has developed and implemented a metal plating process that will recycle the excess cadmium and chromium created in the plating process. "We re-use it and therefore limit the amount of discharges that are getting into the environment," said Montoya.

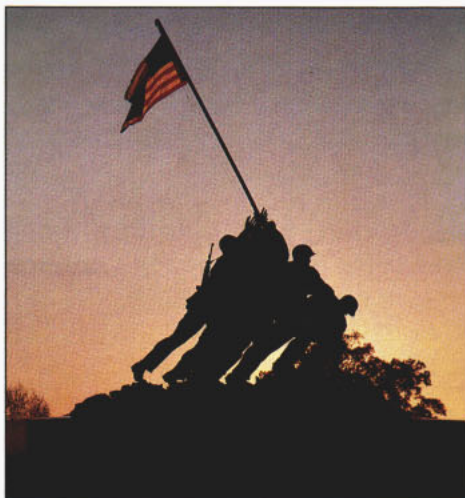
But, in Montoya's opinion, the number one priority for NavFacEngCom right now is to ready the new bases on the Gulf Coast, at Everett and on Staten Island, N.Y., for the fleet by the early 1990s. That will be followed by a couple of significant overseas projects.

One such project will relocate facilities, located on the Agnano Crater in Naples, Italy, to a preferred location near the Capodichino Airport. The relocation is expected to cost approximately \$100 million. A second project is to install the water and power plant facilities needed in Subic Bay, Republic of the Philippines, to make that base's utilities independent from the local distribution system.

"To sum it all up," said Montoya, "The question that is continually asked about NavFacEngCom is, 'What is your job?' and the answer is, 'To serve the fleet.' That's what everyone must remember — that we only have one mission, and that's to support our men and women in the Navy." □

Johnston is a staff writer with All Hands.

Below: The famous leathernecks of the Iwo Jima statue greeted the sunrise in solitude, but by 9:00 a.m. they had plenty of company (right).



Marine Corps Marathon

12,000 runners gather for the “people’s race.”

Story by W. W. Reid, photos by PH1(AC) Scott M. Allen

Why would anyone want to run a marathon? Standing at the starting line of the 1988 Marine Corps Marathon, shoulder to shoulder with acres of other would-be marathoners, the answer seems clear enough: This is one of the most exciting athletic events an “ordinary citizen” can ever participate in.

It seems as though half the Washington, D.C., metropolitan area is leaning toward the starting line, fingering their stopwatches — but it’s really only 12,000 runners.

Marines led the military entrants with 788, but the Navy fielded a respectable contingent — 666 runners.

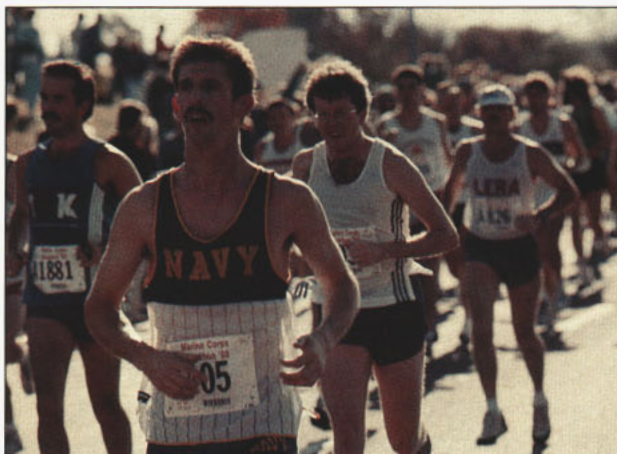
Why would anyone want to run a marathon? Once the Marine Band has played the National Anthem, and the starting howitzer has been fired, runners get caught up in the rhythm of the race; it’s thrilling, or at least fun. In the first eight miles, there are several tunnels (actually, overpasses leading from downtown to the Pentagon). As the thundering throng rumbles through each tunnel, the Marines in the group (there are *always* Marines in the





Photo by JOSH OSCAR SOSA

Left: All the runners showed their true colors, some carried the flag, others represented their service (below). **Bottom:** Wheelchair racers showed the way from the start.



group) start up their curious, trademark jogging chant: "Hrooh! Hrooh! Hrooh!" It sounds silly, but is oddly infectious, and soon everyone in the tunnel is chanting — lawyers, housewives, bureaucrats, sailors, editors, students. We may sound like a bunch of sea lions with bronchitis, but we are definitely in the spirit of things.

Why would anyone want to run a marathon? By the 15-mile mark, some of us are beginning to wonder. We've circled the Pentagon, crossed the Potomac to Georgetown, gone under the balcony of the Kennedy Center, plodded down the Mall up and around Capitol Hill. Legs stiffen, feet get heavy and the perspiration that warmed you in the first half of the race is starting to chill you now that the wind's picked up.

The pack has spread out a bit and the group camaraderie isn't as much of a factor as it was at the start. Marathons tend to divide themselves into fairly distinct groups of runners. Up front are the twenty or so of the

"world-class-or-close-to-it" group; they'll all finish in under three hours. Next comes the "local-top-flight-recreational-runners" group; they'll run hard and confidently, finishing well under four hours. After that, there's the several thousand plodders who make up the majority: the "average-recreational-runner-who's-trained-as-hard-as-his/her-busy-life-will-allow" group. They will finish, but it might not be pretty. Then there's the rest of us: the "Napoleon's-retreat-from-Moscow" group, who, at mile 22, are figuring "Why run a marathon?" is a damn good question. More than a few are answering the question by sitting down. As we struggle up the far side of the wind-swept wasteland that is East Potomac Park, our legs aren't just stiff, they're more or less frozen, with rock-like cramps in every moving part (and at this point, there are fewer and fewer moving parts).

Less concerned now about our finishing time, the most it seems we can hope for at this point is a decent

Below: One young spectator sat on Dad's shoulders to "high five" passing runners. Right: When Lori Lawson, the first-place female in the 1988 Marine Corps Marathon, crossed the finish line, she did some celebrating of her own.

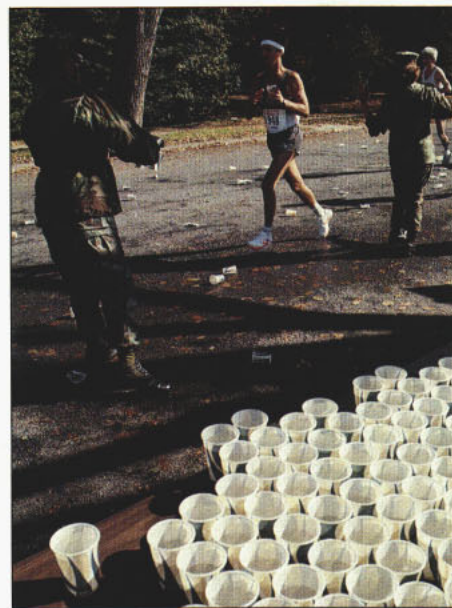


burial. As more and more stragglers are deciding to give up the straggle, surrendering to aching legs and dehydrated bodies, a young woman in a wheelchair pushes herself slowly by. Legless, she has called on her arms and shoulders to do more than can reasonably be expected. Ashen-faced, her black shirt crusted white with the salt of her dried sweat, she is driven by a determination that transcends physical pain.

As she trundles agonizingly down the center line of I-295, leading back to the finish line, those of us who thought we had "hit the wall," figuring to call it a day, gingerly rise up off the curb, stretch and groan, and get back in the race. Our legs may be sore, but at least we *have* legs.

Why run a marathon? In the final few hundred yards, plodding past the Iwo Jima statue, down a corridor lined with banners and cheering spectators, the answer is simple enough: to finish. The personal satisfaction that comes from completing a 26.2-mile race is difficult to measure. Finishers this time numbered 8,998. For those who don't finish, the frustration and disappointment only serve to fuel the determination that leads one to next year's Marine Corps Marathon. □

Allen is an All Hands photojournalist. Reid, editor of All Hands, finished 6,264th.





Far left: More than 1,800 Marines from U.S. Marine Corps Base Quantico made the marathon possible, some by handing out desperately needed water, and then cleaning up close to a ton of crushed cups afterward. Left: First aid was available all along the 26.2-mile route, where a quarter of a million spectators turned out to cheer their favorites (above).

Naval Civil Engineering Lab

For over 40 years NCEL has "built better mousetraps" in support of fleet needs.

Story by JO1 David Masci

The Naval Civil Engineering Laboratory traces its history back to 1948, when it started out by testing commercially available equipment for the Seabees. Since then, NCEL in Port Hueneme, Calif., has dramatically shifted its emphasis.

What began as a testing laboratory grew to a shop that designs new ways of doing things, finally expanding to encompass prototype production and fleet trials. Today, NCEL researches, designs and develops construction products and services commercial firms don't offer.

"Until about 10 years ago, we would just develop technology and put it on the shelf. Someone else developed the products for field use," said CAPT Donald R. Wells, the laboratory's commanding officer. "We were not product-development oriented. We used to have technology departments—now we have product departments."

Wells is one of only a handful of military men at the lab, which employs more than 400 civilian scientists, engineers and support staff. The laboratory is divided into four main research areas: energy and en-

vironmental protection, shore facilities and material technology, amphibious and advanced base facilities and ocean facilities.

"Most of the fleet looks at research and development as scientists running around in white coats looking at things people in the fleet never see," lamented Wells. It's a perception he wants to dispel. "The product may go either to the shore establishment or to the fleet, but it directly supports the fleet side."

Part of fleet support is the lab's policy to make a quick transfer of technology from the shore establishment to the operating forces. Wells described an example of technology transfer relating to specially laminated windows on aircraft carriers that typically take up to nine months to replace.

"The bullet-proof, blast-resistant glass technologies we were developing for the State Department is called 'polycarbonate glazing,'" he said. "Because it's much stronger than glass, we can make thinner windows for one-third the cost, and it can be cut, delivered and installed in a few days. This is direct fleet support."

The laboratory's "customers" contract with NCEL to produce a product. "The product may be a piece of hardware, it may be a specification for that hardware, it may be a technical manual," said Wells. "I have to keep that customer satisfied with a quality product delivered on



An NCEL technician attempts to break through a polycarbonate glazed pane after a thermal attack test.

NCEL file photo



NCEL file photo

time, within budget."

Engineers at the lab work on problems as varied as security, clean up of contamination and development of new tools. In addition, the lab provides consulting services to the fleet.

Physical security is an engineering area equally important to ships and shore stations. Spaces storing everything from cash to nuclear weapons must be protected from unauthorized access. The thrust of the laboratory's research has taken a novel approach in this area, according to security engineering division director Gary R. Cook.

"Physical security is interesting," said Cook. "In the past, it's been based primarily on intuition and ex-

perience. We're trying to base it on quantitative information and engineering. Very few people have taken this approach before."

Cook said putting up a fence or placing iron bars on a window won't necessarily enhance a building's security. "If you can still kick the door in, I've obviously not added to the security and it's cost me a lot of money," he explained.

To standardize the required security levels of buildings and their doors and windows, Cook and his 16-person staff have developed a computerized security system and an accompanying design manual that recommends cost-effective measures to counter threats.

The security engineers have developed vehicle crash barriers, bullet-proof glass and forced-entry resistant doors. They are the Defense Department's leading experts on locks, safes, containers and seals.

Buying products that meet the services' needs on the open market is usually not an option, according to Cook. "The DoD is much more subject to terrorist attacks than private industry," he said, "and since it represents a relatively small portion of the commercial security market, they don't develop things that will meet our level of threat."

Threat tests conducted at NCEL and outlying sites include forced-entry attacks using hand and power

Naval Civil Engineering Lab

tools, a 3,700 degree thermal lance, ballistics and explosives.

"I'm not saying we can stop every threat in the whole world," said Cook. "What I'm saying is we can design to stop *certain* threats."

Security is just one of the areas of expertise at NCEL.

At the energy and environmental department, environmental program

manager Winston deMonsabert described how microscopic organisms are being used to solve a major hazardous waste headache.

At Naval Air Station Patuxent River, Md., leaking fuel storage tanks have contaminated the surrounding ground water. The laboratory's solution is to encourage the growth of tiny, naturally occurring

"bugs" that will eat the oil, then die off.

"In any piece of dirt you have millions of 'bugs,' or microorganisms," said deMonsabert. "Each different type of bug has certain things it likes to eat and things that hold it back from multiplying." He said the planned use of organisms already in the soil is an environmentally conscious decision that will allay fears of disrupting the site's natural balance.

"We seed the area with nutrients these organisms thrive on," said deMonsabert. "They will eventually do what we want them to do. When the food is gone, they'll go back to their natural population. That way we haven't disturbed the ecology in the long run."

DeMonsabert's boss, Dr. Roger Staab, who heads the energy and environmental department, said convincing the Navy to try this minimally intrusive solution was not difficult. "It's a matter of economics," he said. "It's not that hard, once you show the decision maker what the cost is going to be as opposed to having to dig up and haul away all the contaminated ground."

In NCEL's traditional role of supporting the construction battalions, the ocean engineering department's construction systems division has designed a set of underwater power tools driven by pumped sea water rather than the oil now in use.

Using hydraulic fluids like oil limits a diver's mobility because it requires a second hose to return oil to the pump. Divers can't effectively use hydraulic tools below 300 feet. Oil can contaminate the diver's breathing gas, and seawater can contaminate the machinery, requiring extensive repairs.

The heart of the multi-function tool system is a diesel engine that



NCEL file photo

A safe door is tested during a 3,700-degree thermal attack.

drives a sea water pump delivering 2,000 pounds per square inch of pressure into a half-inch hose. Four different tools can be attached at the end of the hose: a band saw, grinder, impact wrench or rock drill. Each tool contains a three-horsepower motor, driven by sea water, with the clean water discharged back into the ocean.

Mechanical engineer Bruce Farber said human factors were important design criteria. "We make sure the tool is compatible with the diver," he said. "The tool has to do most of the work. The diver doesn't have his legs and back to lean against. He's effectively weightless, very much like an astronaut."

Once a prototype tool is designed, a Navy dive team tests the tool in NCEL's on-site tank and then in the ocean. "Our eventual goal is that the tools will be manufactured by private companies," said division director Mike Atturio. "That happens a lot, and that's the way we like it."

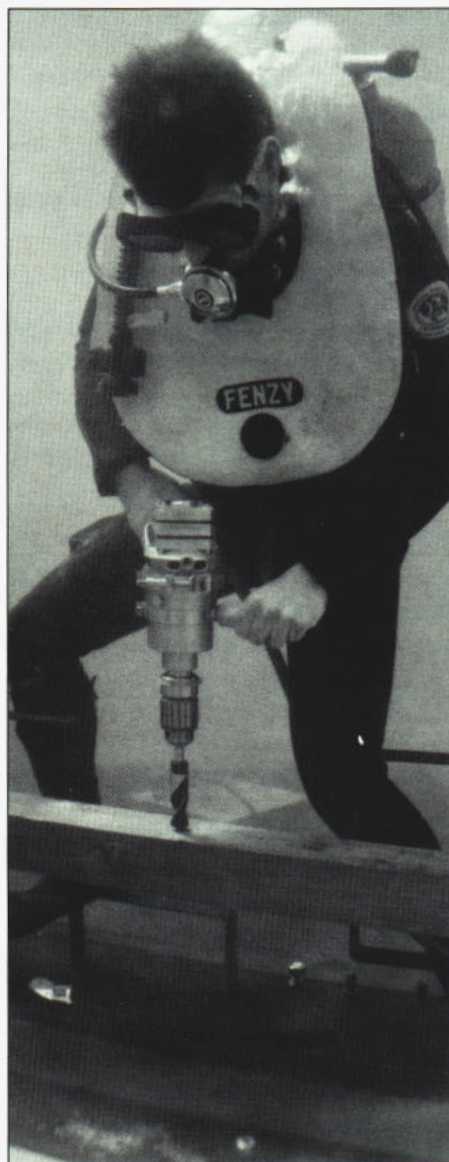
NCEL offers quick solutions to fleet problems. The Facilities Engineering Support Office operates a hotline fielding hundreds of urgent requests for information or services each year. That means Jerry Dummer, director of the FESO, is the man at NCEL who is most in contact with the fleet. Dummer and an assistant handle about 150 requests each month for information and services.

"The most important thing is to get the technology out into the field, not to document that we did it," said Dummer. "We want the person who needs the technology to have direct access. That's what this office is all about."

Roughly half the requests can be answered by mailing to the caller a copy of the laboratory's report on the subject, Dummer said. NCEL will also give 24 man-hours of consulting services free of charge. Beyond that,

or for on-site visits, the activity or firm must contract with the lab and pay.

To make it easier for his clients to get the information they need, Dummer is helping develop computer



A Navy diver uses a sea-water-powered, multi-function tool system drill developed by NCEL scientists.

programs called "expert systems" for common problem areas. Through a series of "yes or no"-type questions, the program can help the user solve a problem with paints, for example.

FESO is also linked through an electronic mail network with outside sources of information — other government labs and engineering offices.

"We're not the only holder of technology," Dummer said. "We're an information broker. There are lots of engineers and bright people in the field who come up with innovative solutions. If we know where those bright people are, we can refer callers to them."

"The more I use this 'e-mail,' the more I feel there is an answer out there for just about any fleet problem," he continued.

Dummer said technology transfer isn't just a helping hand. It's an obligation, especially once lab engineers have finished researching a product.

"If we develop a widget and we think that widget has commercial applications, we're required by law to make it available to private industry. That's outgoing technology transfer," he said.

On other occasions a business may hire the lab through cooperative R&D agreements, under federal technology transfer laws. "We don't bless products for Navy use," Dummer said. "The company can hire the lab and ask us to develop or improve their product. But there's no guarantee the scientists will come up with a commercially successful product at the end."

As the Navy's principal research and development center for shore, surface and underwater construction, NCEL applies existing technology to today's problems while searching for tomorrow's answers.

"Our focus is on what we'll need in the year 2000 and beyond," said Wells. "At the same time, the fleet commander is focused on what's going on, day by day. We try to keep it balanced." □

Masci is assigned to NIRA Det. 5, San Diego.

Navy Memorial flags

Fleet Reservists provide special mementos.

Story and photos by PH1 Chuck Mussi

Flags are always with us. We stand before one when we are sworn in. There's one flying at our duty station — afloat or ashore — when we arrive and depart. And when we die, they wrap us in one.

Shifting colors and getting underway, showing the colors, "hauling down the colors" when one's duty is done — the flag is the key element in every Navy ceremony. It is also the most treasured memento of that ceremony.

When a sailor leaves the Navy, shipmates gather to honor a career completed. The finest token of that honor is often the flag. The memories of such a career are usually very special, and they usually involve flags: saluting the ensign boarding your first ship, standing at attention in bitter cold or sweltering heat (never ducking inside) on base when colors are piped, the bittersweet strains of taps blessing a flag-draped casket.

Such special memories are best commemorated with special flags.

Now, thanks to the Fleet Reserve Association's Branch 67, sailors can hold in their hands just such a special memento: a U.S. flag that has flown from the

mast over the Navy Memorial.

The Memorial was authorized by Congress in 1980, but built with private donations gathered by a private organization, the United States Navy Memorial Foundation. It is nearing completion in the heart of the nation's capital, on Pennsylvania Avenue. Dedication ceremonies took place on Oct. 13, the Navy's birthday, in 1987.

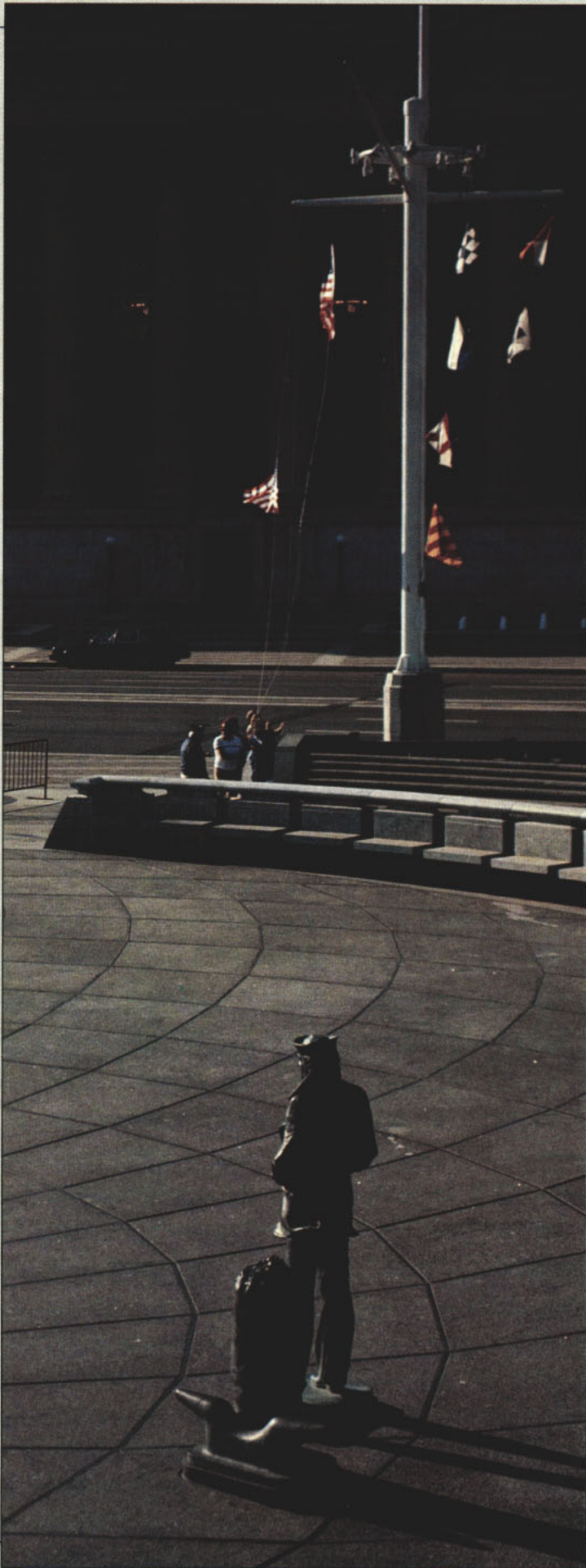


Since early 1988, FRA volunteers have been working long hours, braving the elements weekend mornings and week-day nights, to meet a growing demand: More and more people want to be proud owners of a flag that has flown over the Navy Memorial.

Working in shifts, FRA volunteers, including Navy League Sea Cadets and Veterans of Foreign Wars members, cart out boxes and

boxes of 3-foot by 5-foot Dettra Duralite nylon flags, with sewn stripes and embroidered stars. Each flag is run up the official Navy Memorial flagpole, lowered, properly folded and stowed.

For \$22, anyone who wants one can purchase such a flag. The charge covers the cost of the flag itself, a certificate of authenticity and a donation that is divided between the Navy Memorial Foundation and



Active duty sailors turned out on dedication day to bear flags. Now, the Fleet Reserve is hoisting colors for donations.



"Hauling down the colors" when one's duty is done—the flag is the key element in every Navy ceremony.

the Fleet Reserve Association.

Flag orders, with the check or money order made payable to "Navy Memorial Flag Program," should be mailed to Navy Memorial Flag Program, FRA Branch 67, 5006 Suitland Road, Suitland, Md. 20746. Allow four to six weeks for delivery and clearly indicate the name(s) to be inscribed on the certificate.

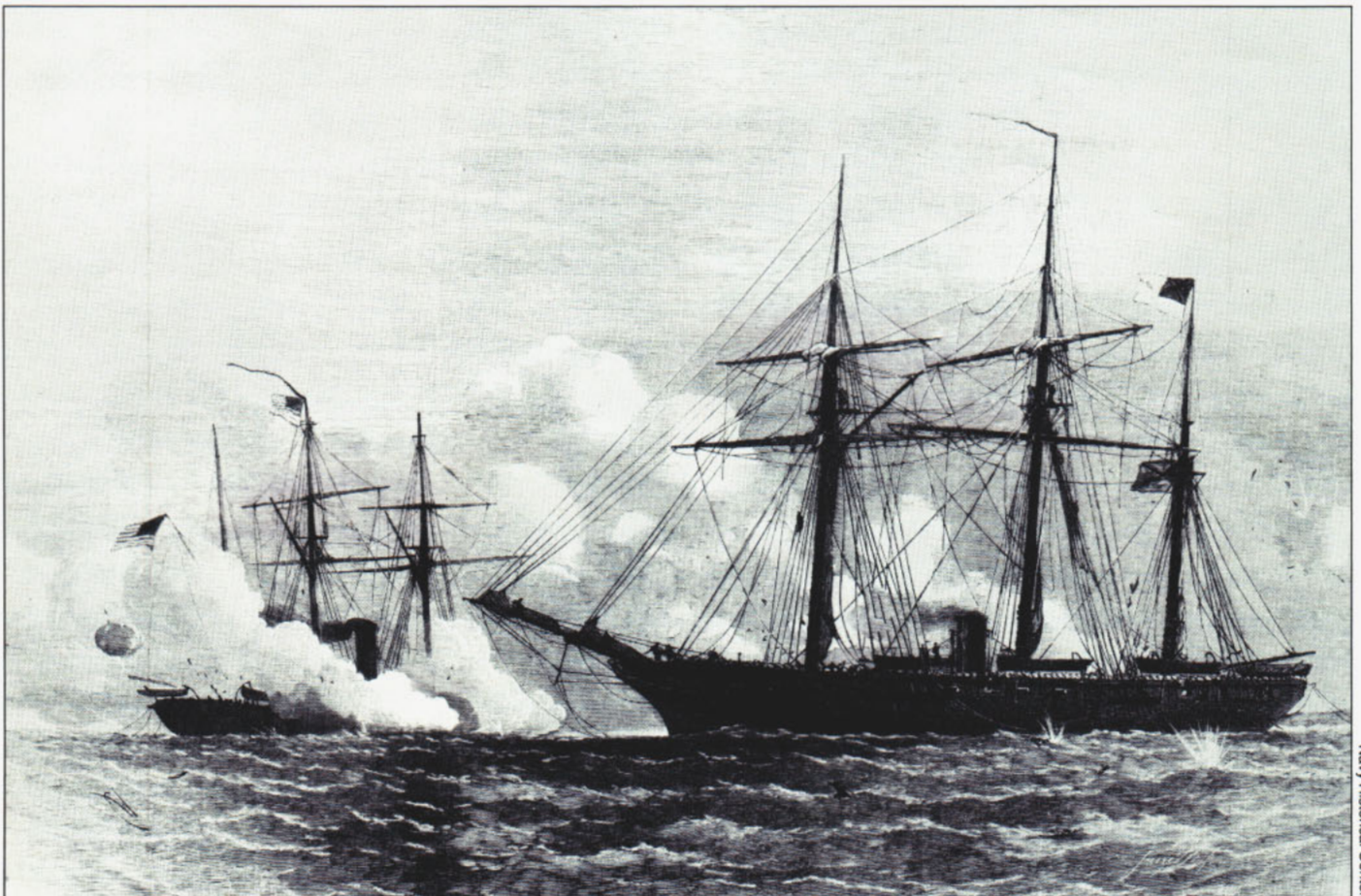
Throughout our careers, flags are always with us. Now the Fleet Reserve Association is helping sailors take with them a very special flag, one that they will truly want to keep with them always. □

Mussi is a photojournalist for All Hands.

Duel at Cherbourg

USS Kearsarge and CSS Alabama pounded each other in a fight to the finish off the French coast during the Civil War.

Story by JO1 Mike McKinley



Navy Historical Center

On Saturday morning, June 11, 1864, one of the Confederacy's most dangerous and successful commerce raiders, CSS *Alabama*, steamed into the French port of Cherbourg. Having just completed a 22-month cruise during which it had captured or destroyed 62 Yankee merchant ships and one Union warship, *Alabama* was in need of overhaul and its crew a rest.

Under the command of Confederate Captain Raphael Semmes, the English-built *Alabama* carried a mixed crew of British, Irish and Confederate seamen, all supervised by Confederate officers. *Alabama* had, during this most recent foray, covered 75,000 miles of ocean, the equivalent of three voyages around the world, leaving in her wake a trail of smoldering wrecks all the way from the Grand Banks of Newfoundland to the Indian Ocean. The ship's depredations had already cost Yankee merchant shipping interests over \$5 million and had put Semmes at the top of the Union Navy's "most wanted" list.

After anchoring *Alabama* in the harbor at Cherbourg, Semmes went ashore to request permission from French naval authorities to land 37 prisoners he had taken in his raids and to put his ship in dry dock for repairs.

Although willing to take the prisoners off his hands, authorities weren't keen on allowing Semmes docking space. Cherbourg was a French naval station and its facilities were reserved for the French fleet only. Permission to use the dry dock would have to come from Emperor Napoleon III in Paris. But Napoleon was off on vacation and Semmes was told that it might be a while before an answer to his request would arrive. However, if the Confederate skipper didn't wish to wait, he could sail his ship to another port, such as Le Havre, which was not a French

naval station and had private docking facilities.

But Semmes decided he would wait, feeling confident that he would eventually be granted use of Cherbourg, since he knew the emperor supported the Confederate cause. Also, his men needed a much deserved liberty and he could start some repairs while waiting for the emperor's response.

The news of *Alabama's* arrival in Cherbourg quickly reached the French capital and the next morning, June 12, the American Minister there telegraphed the Federal sloop-of-war, USS *Kearsarge*, then anchored in Dutch waters 300 miles away, to make all speed to Cherbourg to intercept the rebel raider and to pick up the prisoners put ashore the night before.

For many months, *Kearsarge*, commanded by Captain John A. Winslow, had been cruising the Azores, hunting for Confederate raiders, but thus far they had eluded him. Semmes was especially irritating; he and Winslow had been playing a game of cat and mouse for some time. So when Winslow received the message from Paris that *Alabama* was in Cherbourg, he made immediate preparations for getting underway. This time, he was determined that Semmes wouldn't get away.

There was considerable excitement aboard *Alabama*, when, on the morning of June 14, the crew saw *Kearsarge* approaching the entrance to the breakwater. Semmes ordered the mizzenmast and topgallant yards sent down and prepared his ship for action. He also sent an urgent order to shore for one hundred tons of coal that he had been unable to receive over the weekend. He had to have the coal or he wouldn't stand a chance if it came to a running fight against *Kearsarge*. It was a foregone conclusion who would be victorious in a sails-against-steam confrontation.

With her sails still furled, *Kearsarge* steamed into Cherbourg harbor, passing by *Alabama* in a manner suggesting that she had barely taken notice of the raider. Tension was high on the Confederate ship as Semmes and his crew watched the Yankee warship come to a stop a short distance away and lower a boat into the water. Once the crew of the boat was well away from the mother ship and headed toward shore, *Kearsarge* made her way back out toward the harbor entrance to take up station just beyond the breakwater.

Securing his crew from quarters, Semmes sent for his executive officer, John McIntosh Kell. When the XO arrived at the captain's cabin, Semmes said to him, "Kell, I am going out to fight the *Kearsarge*. What do you think of it?"

Kell left a detailed written record of the battle, in which he described the meeting. "We then quietly talked it all over," Kell said, "We discussed the batteries, especially the *Kearsarge's* advantage in 11-inch guns. I reminded him [Semmes] of our defective powder, how our long cruise had deteriorated everything, as proven in our target-practice off the coast of Brazil when certainly every third shot was a failure even to explode. [But] I saw his mind was fully made up, so I simply stated these facts for myself."

On board *Kearsarge*, Winslow waited for the return of the officer and boat crew he had sent ashore to meet with French authorities and the U.S. Consulate to determine the status of the prisoners and to ascertain further intelligence on the activities and intentions of *Alabama*. Winslow wanted to keep his quarry right where she was: within sight — and trapped.

As Winslow anticipated the impending battle, it seemed to him the advantage would be on his side. *Alabama* was light and built for speed, but *Kearsarge*, though heavier, was

Duel at Cherbourg

solidly built, and also had improvised chain-cable side armor, which would greatly limit damage by enemy cannon. The chain-cable, 120 fathoms of it, remained hidden behind boards until ready for use, when it would be hung over the side.

For armament, *Alabama* carried eight guns, including six 32-pounders and two pivot guns, a Blakely 110-pound rifled gun and an 8-inch smoothbore. But Winslow's *Kearsarge* carried two 11-inch Dahlgrens backed up by four 32-pounders and one rifled 28-pounder. Keeping these guns in action was the job of his disciplined and well-trained crew of 162 men, who outnumbered the crew of *Alabama* by 20.

While Winslow waited for his emissary to return, Semmes sent a message to Admiral Samuel Barron, the senior Confederate naval officer stationed in Paris. Semmes told Bar-

ron that since *Kearsarge* was in Cherbourg, he took it to be a challenge and he was going to go out and settle the issue between them as soon as he finished coaling ship and overhauling the magazine, shell rooms and all gun equipment.

Later, when Semmes was asked by the U.S. Consulate in Paris to make arrangements for the prisoners to be transferred from Cherbourg to *Kearsarge*, the Rebel captain refused. He reasoned that turning over the 37 prisoners would simply mean 37 more enemy crewmen to contend with in the upcoming fight.

Directing the Confederate agent in Cherbourg to deliver his answer on the prisoner issue to the U.S. Consulate and thence to Winslow, Semmes also gave the agent a personal note which he wanted delivered to Winslow. The note read: "I hear that you were informed by the

United States consul that the *Kearsarge* was to come to this port solely for the prisoners landed by me, and that she was to depart in twenty-four hours. I desire you to say to the United States consul that my intention is to fight the *Kearsarge* as soon as I can make the necessary arrangements. . . . I beg she will not depart before I am ready to go out." Thus Semmes directly challenged Winslow to a duel. Winslow was more than ready to accept.

Word of the impending battle caused a considerable stir in Cherbourg. Until this news, the citizens' only immediate contact with the American Civil War had been through the sea stories told by sailors from battle-scarred Confeder-

***Kearsarge* officers display grim determination before the battle. CAPT John A. Winslow is third from the left.**



Navy Historical Center

ate ships that, like *Alabama*, had pulled into Cherbourg from time to time for refitting and repairs. But now, the war had come close to home as two ships of the opposing American navies were going to have it out right in Cherbourg's backyard.

The news quickly spread, not only throughout France, but throughout Europe as well and within one day visitors began swarming into Cherbourg. Excitement was at a fever pitch as the curious crowded the Cherbourg docks to get a closer look at *Alabama* as the crew prepared her for battle against the Yankee warship that could be seen waiting beyond the breakwater.

As one *Alabama* crewman recounted, "Everywhere we went, we were treated as brave gladiators. In the harbor stood mighty warships of the French Navy, and even they looked upon us with envy." The sailor added, "Although we all knew *Alabama* was seriously in need of repairs, pride, mixed with Confederate patriotism, assured each man a victory."

But the French government wasn't happy with the situation in Cherbourg. Word came from Paris advising Semmes that his presence was no longer welcome in the French port and that he should make all haste in preparing to get underway. Port residents also feared that Winslow might get impatient and start firing at *Alabama* while she was still in the harbor.

For the next four days, Semmes and his crew worked diligently to get *Alabama* ready for action. Coal was heaped into the ship's bunkers and the crew worked day and night to strengthen and refit the raider. The ship's Third Lieutenant, Joe Wilson, remarked sarcastically, "The townspeople doubled our (food) portions, suggesting that we needed to be fattened up for the slaughter."

On board *Kearsarge*, which was now on station just beyond the

three-mile limit of the French coast, Winslow was keeping a constant watch for the Confederate raider. He had earlier addressed his crew boldly: "I will give you one hour to take the *Alabama* and I think you can do it!"

Finally, on Saturday night, June 18, Semmes sent word to the naval authorities in Cherbourg that he would be steaming out to meet *Kearsarge* the following morning. In reply, a French naval officer was sent to inform Semmes that the French ironclad frigate *Couronne* would accompany *Alabama* to protect the neutrality of French waters.

In the morning, the walls and fortifications of the harbor, all the buildings and the hills around Cherbourg were crowded with people, watching as *Alabama* got underway. A band struck up the rousing strains of "Dixie" and some of the onlookers waved miniature Confederate flags.

Alabama was accompanied by *Couronne*, two French pilot boats and, rather incongruously, the English steam-yacht *Deerhound*, owned by a wealthy Britisher and Southern sympathizer, John Lancaster. Lancaster and his sons were more interested in watching Semmes blast a Yankee warship out of the water than going to church that morning with Mrs. Lancaster.

This particular Sabbath morning was bright and warm and the seas calm. Watchstanders aboard *Kearsarge* continued their vigil, eyeing the entrances to Cherbourg for a sign of *Alabama* coming forth to meet them. For some, the watch was getting tiresome.

At 10 a.m., CAPT Winslow began his regulation Sunday inspection of the ship and crew. His inspection began at nearly the same time that *Alabama* got underway. Making his rounds, Winslow found everything in order. But this inspection was a bit different from the routine. The

ship and men were battle-ready, somewhat unusual for a normally quiet Sunday morning. Every gun was loaded and all boilers were stoked and heating. Special lookouts remained perched high in the rigging with eyes peeled for the Rebel raider.

With the inspection completed to his satisfaction, Winslow had the quarterdeck prepared for divine services. Winslow was in the habit of conducting the services himself. Standing before the assembled crew with Bible in hand, Winslow was about to begin his sermon when one of the lookouts cried, "The *Alabama*!" and pointed to port. Emerging out of the haze with its stack pumping black smoke into the sky was *Alabama*, followed at a respectable distance by Mr. Lancaster's *Deerhound*. Both vessels cleared the harbor and stood off to the north.

There was great commotion on *Kearsarge* and even more when *Couronne* hove into view. Winslow picked up his long-glass and studied each of the vessels for a few moments before ordering his executive officer to get the crew to quarters and drape the chain armor over the side.

Winslow had expected only the *Alabama* and was puzzled and concerned about the other vessels that accompanied her, especially the French warship. What were her intentions?

This question was answered when *Couronne* approached within hailing distance of *Kearsarge* and through a speaking trumpet, a French officer relayed his compliments to Winslow and advised him that it was the wish of the French authorities that the *Kearsarge* and *Alabama* should stand well off the three-mile limit to do battle, in order to minimize the possibility of stray shells slamming into Cherbourg.

These terms were acceptable to Winslow and he ordered the *Kearsarge* to turn to and head out to sea.

Duel at Cherbourg

Although anxious to fight, Winslow reasoned that by heading farther out, he would be able to build up more steam and thus give his engines more power when the battle began. And, if four or five miles beyond the three-mile limit, he would have plenty of maneuvering room to cut off a retreat by the Rebel raider should Semmes tried to make a run back to safety within French territory. That is, if he could get by *Couronne*, which had assumed the role of umpire and had positioned herself to keep the contestants on the prescribed playing field, ready to blow the whistle on anyone stepping out of bounds.

When seven miles from shore, the two ships approached to within one mile of each other. Suddenly, *Kearsarge* wheeled, showing her starboard battery to *Alabama*. Semmes countered by turning *Alabama* to port exposing his own starboard side to Winslow. Turning to executive of-

ficer Kell, Semmes coolly inquired if he was ready. Kell responded in the affirmative, and Semmes replied, "Then you may open fire at once, sir." With a tremendous roar, smoke and flame erupted from the raider's Blakely and a 110-pound shell hurtled toward *Kearsarge*.

Winslow held fire as the sailors on *Kearsarge* watched a huge geyser of water erupt well away from their ship when the *Alabama*'s first shot fell short. As *Kearsarge* bore down on the raider, *Alabama* loosed another round from the Blakely. This time the shell came in high, screaming through the rigging, and there was a loud crack as the shell broke through *Kearsarge*'s foretopmast-backstay. Now, as if this hit was the cue, the other guns on *Alabama* joined in a thundering chorus, sending a hail of shot toward the closing Yankee ship. But these rounds went wide of the mark and whistled past. Winslow's gunners, still held in

check, were surprised over the rapidity of the fire coming from *Alabama* and at the same time relieved by the poor marksmanship.

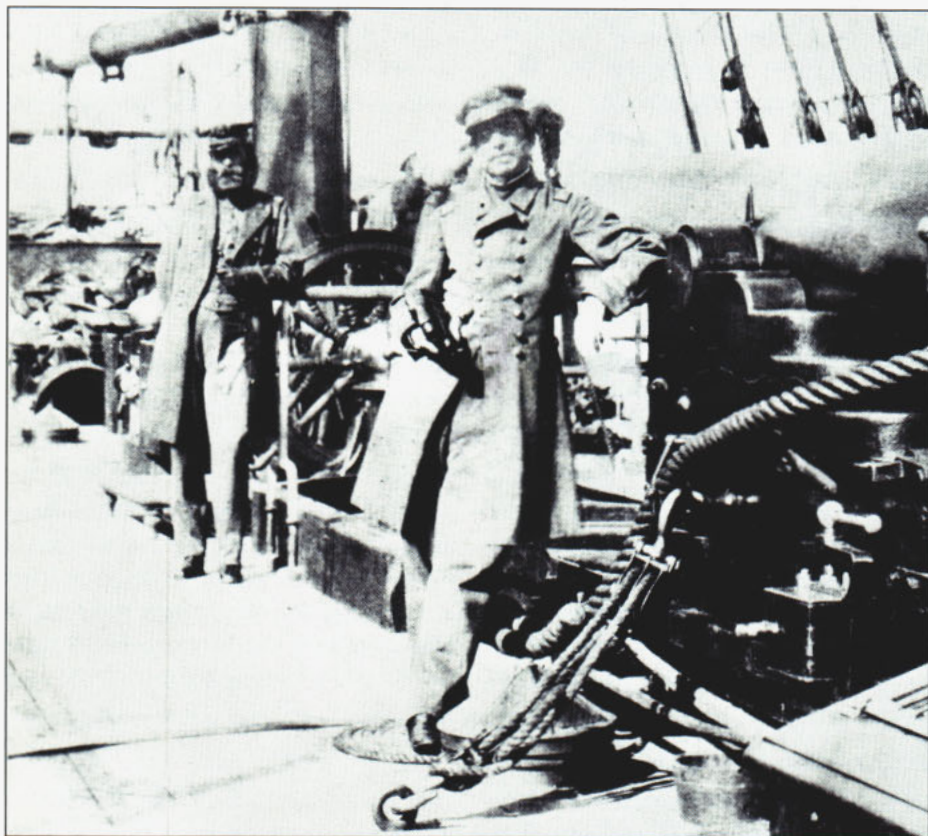
Closing to one-half mile, Winslow felt he was in effective gun range and ordered the helm hard to port just as another rebel broadside was fired. But again, *Alabama*'s guns failed to score and with his own starboard side now facing that of the enemy, Winslow gave the order, "All the divisions! Aim low for the water line! Fire! Load and fire as rapidly as possible!" His unrestrained starboard gunners laid down a roaring broadside, slamming several solid hits into *Alabama*. More deliberate in their aim, the Yankee gunners concentrated on trying to rip open *Alabama* at the waterline.

"The firing now became hot and heavy," recalled John Kell, as the two ships, shrouded in gunsmoke, traded broadside for broadside, steaming in matching clockwise circles, a tactic that eventually saw the circles getting tighter and tighter, bringing the two ships closer together until they were only about 400 yards from each other.

Kearsarge gunners were lacing *Alabama* with shells from the 11-inch Dalgrens with deadly accuracy, hitting the raider repeatedly at the waterline. But once *Alabama*'s gunners got the range and settled down, they began inflicting damage of their own.

One of the raider's 110-pound shells dropped through the engine-room skylight of *Kearsarge* barely missing the boilers. Another followed, ripped through the starboard bulwarks of the Yankee ship just below the main rigging and exploded on the quarterdeck, taking out three gunners on the after Dahlgren. All three men were severely wounded.

CAPT Raphael Semmes stands next to *Alabama*'s 110-pound rifled gun. Behind him is LT John Kell.



Navy Historical Center

One of them, quarter gunner John W. Dempsey, was quickly rushed to sick bay, anesthetized with chloroform and, in just minutes after being hit, had his mangled arm amputated.

Ordinary seaman William Gowin, hit in the leg, dragged himself to the forward hatch and refused aid from other men at the guns, telling them to keep firing. Gowin would later die of his wound.

Yet another 110-pound shell exploded inside *Kearsarge's* stack, gouging out a massive hole in its wall.

The next 110-pound shell from *Alabama's* Blakely slammed into *Kearsarge's* stern post and lodged there. This was the hit Semmes was looking for. In a few seconds, that shell would explode and the Yankee ship's rudder would be useless, making this battle yet another *Alabama* coup. But to Semmes' chagrin, as he watched through his long glass for the expected explosion, the shell in the stern post neither smoked nor flamed. It was a dud! All it did was bind the *Kearsarge's* rudder, making it harder, but not impossible, to steer the ship.

Winslow kept the *Kearsarge* gunners hard at it, the 135-pound shells of the Dahlgrens thundering into *Alabama's* sides, sending geysers of water and wood splinters hurtling skyward. Meanwhile, the 32-pounders swept *Alabama's* decks with shot.

Thus far in the battle, *Alabama* had lost only one man and had two wounded. But the casualty list suddenly lengthened when, during one Yankee salvo, a shell from a 32-pounder crashed through *Alabama's* 8-inch smoothbore's port, completely disemboweling the first man it hit before it exploded, terribly mangling 18 others. Sailors slipped in the blood as they left their guns to help clear away the wounded from the blast and throw the dead over the side. Shovels were used to clear the

deck of flesh and bone and to lay down sand so men could keep their footing.

While *Alabama* sailors performed this grim cleanup, more Yankee shells ripped through the Rebel ship's hull, several of which exploded simultaneously, wounding and killing *Alabama* sailors below decks.

In reply, *Alabama's* guns began slamming shells into *Kearsarge's* side. But to Semmes' amazement the shells bounced off the Yankee ship's hull. Semmes then ordered solid shot fired at *Kearsarge*, and it too struck and plopped into the sea, with little effect. Blaming deteriorating gunpowder for this, Semmes had his gunners alternate between both shot and shell.

After the battle, when he found out that Winslow had armored *Kearsarge* with 120 fathoms of chain cable, Semmes was furious and felt that Winslow had committed an unforgivable *faux pas* in the code *duello*. "It was the same thing as if two men were to go out and fight a duel," said Semmes later, "and one of them, unknown to the other, were to put on a suit of mail under his outer garment."

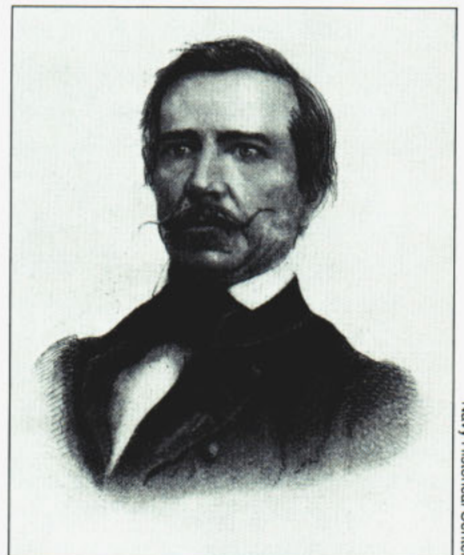
For more than an hour the battle had raged, and now *Alabama* was taking a savage pounding. Shells from the Yankee guns tore into the raider's hull, smashed into her decks, ripped away her rigging and killed, maimed and wounded her sailors. Semmes himself was struck by a shell fragment as he stood on the quarterdeck, giving orders to his men.

As the sea poured through the gaping holes in *Alabama's* side, the stricken ship settled slowly in the water. Rebel gunners bravely traded shot for shot, but more erratically and wildly.

Winslow, sensing victory, wanted to end the fight once and for all. He ordered his gunners to fill their guns with grapeshot and rake the enemy

decks. When the guns went off, the effect on the Rebel sailors was gruesome as they fell to the deck, wounded or killed. It was like facing massive, high-powered shotguns firing lethal loads of buckshot. Each ball in the nine-ball cluster of grapeshot weighed three pounds and at close range could be devastating.

Semmes now knew that the battle was nearly over. He had only two guns still on line, his 32-pounders. His ship was sinking by the stern and a good part of his brave crew lay dead or dying on *Alabama's* bloody decks. The Rebel captain turned to Executive Officer Kell, and said, "... as soon as our head points to the



CAPT Raphael Semmes

Navy Historical Center

French coast in our circuit of action, shift your guns to port and make all sail for the coast."

But Winslow put *Kearsarge* in a position to cut off *Alabama's* escape.

Running to a hatchway, Kell yelled down to the engineer to give the ship more steam. The reply came back that the ship already had all the steam it could carry without blowing up. But under the circumstances, it was crucial that something be done, so the assistant engineer told the men in the "black gang" to, "Let

Duel at Cherbourg

her have the steam, boys! We had better blow her to hell than let the Yankees whip us!"

Yet, no matter how much steam they tried to raise in the boilers, the fires were going out from the flooding below decks, compliments of the Yankee's 11-inch guns.

Kell went below to determine how long the ship could stay afloat. In *Alabama's* wardroom, now converted into a makeshift operating theater, he noticed Assistant Surgeon David Llewellyn, standing waist-deep in water with an expression of disbelief on his face. Just moments before, a shell from an 11-inch Dalghren had smashed through an adjoining bulkhead and swept away the operating table, with a wounded seaman on it, leaving behind a ragged hole in the outboard bulkhead through which seawater now rushed.

Arriving at the flooded engine-room, Kell, up to his hips in water and floating wreckage, could tell by the steam from the boiler's drowned fires that *Alabama* was finished. This he reported to Semmes when back on deck.

"Then, sir," said Semmes, addressing Kell, "cease firing, shorten

***Kearsarge* crewmen cheer with unrestrained enthusiasm as their guns slam shot and shell into *Alabama*.**

sail, and haul down the colors. It will never do in this Nineteenth Century for us to go down with our decks covered with our gallant wounded."

From *Kearsarge*, Winslow saw *Alabama's* flag go down, but not knowing whether it was shot down, hauled down or whether Semmes was playing a trick, he ordered his gunners to give the badly listing, ravaged raider another broadside, causing more terrible, and now useless, suffering on the sinking Rebel ship. Then a white flag was sighted as it was run up from *Alabama's* slowly settling stern.

Winslow ordered a cease-fire and for the next two minutes he and his sweating, powder-stained crew silently and warily watched the sinking raider. They could see survivors jumping overboard. The battle seemed to be over. Suddenly, the two remaining guns on the *Alabama* opened fire on *Kearsarge*!

Winslow's gunners responded with a broadside. He ordered the helmsmen (it took four men now to handle the wheel because of the shell wedged in the stern post) to steer a course across the sinking ship's bow so that the gunners could rake the battered and bloodied hulk. Then, through the smoke, Winslow saw that the white flag still flew

from the raider's stern and he checked his gunners. He knew now that the battle was over.

Alabama sailors were all abandoning ship as the raider's bow pointed skyward and her stern plunged into the depths. The mainmast was so shot up that it snapped as the raider sank. *Alabama* went down, creating a massive whirlpool that sucked many Rebel sailors into its vortex, drowning them with the ship in 40 fathoms of water.

A dinghy from *Alabama*, filled with wounded survivors, approached *Kearsarge*. Someone on board the heavily laden craft cried out for the Yankees to send more boats.

The best Winslow could do was lower two boats, since that was all that he had left, the others having been destroyed in the battle. Knowing that these two boats and the dinghy wouldn't be enough to save all the survivors, Winslow, through a speaking trumpet, called out to Mr. Lancaster on his yacht *Deerhound* and to the captains on the French pilot boats to lend a hand.

In all, 70 men were rescued by *Kearsarge* and 40 by *Deerhound*. Two of those picked up by the Confederate sympathizer, Lancaster, included Semmes and Kell, the last survivors to leave *Alabama*. Recognizing Semmes, Lancaster hid him under a tarpaulin when he sighted a boat from *Kearsarge* heading toward them. When the boat was alongside the yacht, a *Kearsarge* seaman asked if anyone had picked up *Alabama's* captain. Kell replied, "He's drowned."

When the boat from *Kearsarge* pulled away, Lancaster said to Semmes, "I think every man is saved. Where can I land you?" According to Kell, Semmes replied, "I am under English colors — the sooner you land me on English soil, the better." With that, Lancaster fled to England.

When Winslow heard of Lancaster's duplicity, he went into a towering rage and demanded in no uncer-



Painting by J.O. Davidson

tain terms what right that Englishman had in depriving him of his prisoner. Winslow would later bring charges that Lancaster was in cahoots with Semmes all along.

Still fuming, Winslow put into Cherbourg to release the survivors of *Alabama*. Taking stock of the battle, Winslow reported that *Kearsarge* had only two sailors wounded and one, seaman Gowin, killed, whereas *Alabama* suffered 43 casualties, half of whom were either killed in the fighting or were drowned when their ship went down.

When *Kearsarge* returned to the United States, Winslow was promoted to commodore upon the recommendation of President Abraham

Lincoln. In return, Winslow sent President Lincoln a section of *Kearsarge's* stern post with the 110-pound dud embedded in it.

After the war, Winslow went on to command the Gulf Squadron from 1866-1867. Promoted to rear admiral in 1870, he was given command of the Navy's Pacific Squadron, a post he held until 1872. Winslow died in Boston on Sept. 29, 1873.

Semmes landed safely in Southampton, England, to a hero's welcome. A group of Royal Navy officers presented him with a new sword replacing the one he threw in the channel when he abandoned ship, rather than surrender it to Winslow.

Semmes eventually made his way back to America, returned to the South and was promoted to rear admiral in command of eight ironclads

and gunboats on the James River in Virginia. His duty there was short-lived, however. Near the war's end, he burned and scuttled all his boats to prevent them from falling into Union hands.

At the end of the war, Semmes was indicted, tried and found guilty of piracy. He was sent to prison but was granted a pardon by President Andrew Johnson after spending only four months behind bars. Semmes then returned to Mobile, Ala., to practice law and write about his privateering days and adventures on *Alabama*. A popular lecturer, Semmes made many tours of the South relating his war experiences. He died at Point Clear, on Mobile Bay, Ala., on Aug. 30, 1877. □

McKinley is a staff writer for All Hands.

CSS *Alabama* goes down stern first as survivors abandon ship.



Engraving by Frank Beard

Bearings

'Save the whales' — VXN 8 helps out

For the sailors of Oceanographic Development Squadron 8 and four aerial ice observers from the Naval Polar Oceanographic Center, mission OS-14-88 was quickly coming to an end last October. They had just completed a routine surveillance track from Elmendorf Air Force Base, Anchorage, Alaska, and were looking forward to coming home — Naval Air Station Patuxent River.

But instead the crew would be flying — not south, to home — but north to provide ice reconnaissance support to some very unusual cus-

tomers — two California gray whales and a Soviet nuclear-powered icebreaker.

The whales were trapped in ice-covered waters and could not reach the open sea. The only thing that kept them alive was a single breathing hole cut into the rapidly thickening ice field. Hope was fading fast when the Soviets offered the assistance of two of their more sophisticated icebreakers. But the Soviets needed navigational assistance to get through the waters off Point Barrow, Alaska.

VXN 8's task was to observe and plot the areas of ice in different stages of development so that the icebreakers could avoid giant ice floes and reach the whales safely.

After some early problems with weather conditions, VXN 8, with the embarked aerial ice observers, guided the Soviet icebreakers on station. The whales were freed the next day, as VXN 8 returned to NAS Patuxent. ■

— Story from the Public Affairs Office, VXN 8, NAS Patuxent River, Md.

Boatswain's mate's hobby is bigger than most

When you mention building models, most people think of the little plastic kits you can buy at any hobby store. But when Chief Boat-

swain's Mate Marlin Beck talks about building models, you quickly realize that there is nothing "little" about his hobby.

Beck, the leading chief of fuels at Naval Air Station Keflavik, Iceland, is constructing what has turned into a nearly seven-foot long replica of the aircraft carrier USS *Constellation* (CV 64).

"I was looking for something to do in my idle time," Beck said, "and I have always loved working with wood and building model aircraft." The difference in this case was that all the construction would be based on his memories and photographs from old cruisebooks, rather than printed plans.

"The reason I chose to build the 'Connie' was that I was stationed on her for seven years. My dream is to go back, eventually, for another tour of duty," Beck said.

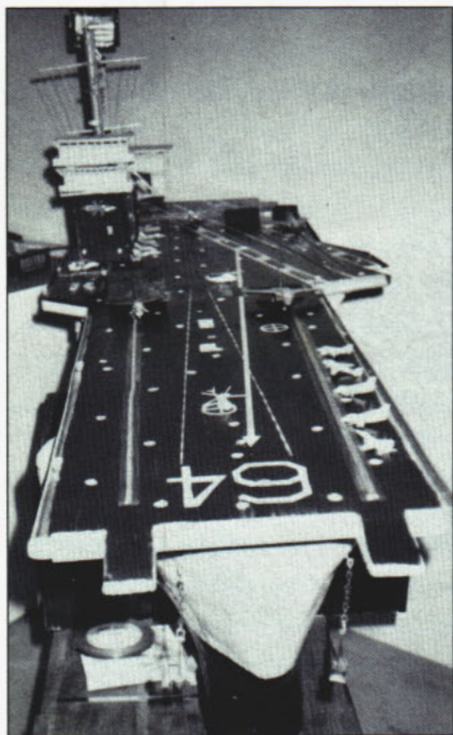
The model began as a sheet of plywood on his living room floor. It shortly moved to the dining room table as the hull took shape.

"When I first started, parts were very hard to obtain," Beck said. "Being in Iceland, I had to order all the special parts from various mail-order firms. Most of the time it takes anywhere from four to six weeks to receive the accessories I need."

So far, the model has required two gallons of paint, 60 square feet of fiberglass, four gallons of resin, 80 sheets of balsa wood and a sheet of plywood used for the flight deck.

"This is more than a hobby," Beck said. "With no blueprints or plans to work from, it has turned into a major undertaking. I work on her anywhere from 30 minutes to six hours at a time. I figure it will be another six to nine months before I have her outfitted the way I remember. Then she'll be done." ■

— Story by JOC Dave Evans, NAS Keflavik, Iceland.



U.S. Navy photo

BMC Beck's seven-foot model of USS *Constellation* takes up most of his dining room.

U.S. sailor 'joins' German navy

Many American military personnel in Europe get a chance to work with their NATO allies during exercises and training events. Not many, however, get the chance to actually be assigned to another country's armed forces for a full tour of duty.

One Navy man, Senior Chief Electronic Warfare Specialist (SW) Daniel Smith, is doing just that. Smith is assigned as an instructor at the German navy's *Marineortungsschule*, or naval detection school in Bremerhaven, West Germany. Smith is one of two U.S. Navy chiefs assigned to the school under the Navy's Personnel Exchange Program. The 20-year-old program sends members, E-4 through O-3, from the U.S. Navy to allied navies worldwide.

The school has all the features of a major U.S. training base, including

recruit training and "A" and "C" schools. Smith instructs German junior petty officers in electronic warfare.

Before PEP members are assigned to an overseas billet, they are sent to the Defense Language Institute in Monterey, Calif., to learn the language of their host nation.

"I had no prior language training besides high school Spanish," Smith said. "At Monterey, they gave me a solid eight months of German."

Smith said he feels fortunate to get the PEP assignment.

"I was coming to the end of my tour as instructor at the Naval Electronic Warfare School in Pensacola when I contacted the assignments branch in Washington," Smith said. "I was prepared to go back to sea after three years of shore duty. I was

surprised when they asked if I was interested in the PEP assignment."

Smith said that the big difference between the United States and German navies is size.

"The Germans have a smaller, more defined defense mission than ours," Smith said. "Their ships, fleet, everything, is smaller. The people, though, are *really* great. It's been a privilege to work with them."

And Smith has similar praise for the PEP program.

"I've certainly gained a lot from the program," Smith said. "There's something special about actually being in a different navy in a different country. We have a lot to teach each other. PEP is a learning experience for both sides." ■

— Story by Army Specialist Alex Gray, PAO, Norddeutschland, West Germany.

Navy Campus leads to college, cockpit

Three sailors from Helicopter Mine Countermeasures Squadron 12 in Norfolk took advantage of Navy training and their flight line skills to earn their college degrees and become commissioned officers.

LT Stan Reed, ENS Rick Bott and ENS Dean Kluss used the Navy Campus voluntary education and bachelor degree program, to earn their commissions in the Navy. All three men then applied and were accepted into the naval aviation training program.

Reed was reassigned to HM 12 after completing Aviation Officers Candidate School, and was reunited with his buddies, Bott and Kluss.

"If Stan had not brought the program to my attention, I would have never done anything about it," said

Kluss, who was an AOCS honor graduate in 1988.

Bott also spent eight years in the enlisted ranks before applying to flight school.

"I developed maturity, and now that I'm a naval aviator, I know what the enlisteds go through. I can better identify with them," Bott said.

Navy Campus provides Navy people with education counseling, free testing services, financial aid and personal counseling.

American Counsel on Education teams examine Navy courses and recommend the number of credits that should be given for completing those courses. Credits earned in the Navy are then combined with other credits accepted by the college for prior civilian schooling.

All three aviators were air crewmen in their enlisted days together. Reed, who was an Aviation Electrician's Mate, spent eight years as an enlisted man before graduating from Southern Illinois University in 1979.

Bott and Kluss completed their degrees in 1986 and 1987 respectively.

All three found out through Navy Campus that some of the Navy schooling could count for college credit, thus giving them the opportunity to complete their degrees.

"Someone took an interest in me," Reed said, "so I'm taking the time to help other sailors find out what academic and career-enhancing programs are available." ■

— Story by Rod Duren, Chief of Naval Education and Training PAO, Pensacola, Fla.

14

Navy Rights & Benefits



Paths to a Commission

Paths to a Commission

The Navy offers many ways to become a commissioned officer. This month's Rights and Benefits briefly describes the Navy's basic commissioning programs. Specific qualifications for entry into any of the programs may change from time to time because of the Navy's needs or new legislation.

Commissioning programs are available for both college students and college graduates. Specialists in certain professional or scientific categories may qualify for a direct commission. Enlisted men and women who are outstanding performers may also qualify for commissioning programs.

By providing many paths to a commission the Navy can more effectively meet its personnel needs while taking into account a variety of individual circumstances and interests. The right road for each individual is determined by weighing and balancing two basic factors — what the Navy needs to man the fleet and what the person is qualified to do.

U.S. Naval Academy

The United States Naval Academy offers an outstanding opportunity for qualified young persons to embark on careers as officers in the naval service. All applicants must have a nomination from an official source in order to be considered for appointment to the U.S. Naval Academy at Annapolis, Md.

There are many sources of nominations. Applicants should apply to all sources for which they are eligible. This always includes a U.S. representative, two U.S. senators and the Vice President. Each year the Secretary of the Navy may nominate 85 active duty Navy and Marine Corps enlisted personnel and 85 Navy and Marine Corps reserve personnel who either are on active duty

or are assigned to a drill unit.

Qualified candidates are appointed to the Naval Academy as midshipmen in the U.S. Navy and receive a basic monthly pay of approximately \$500, plus tuition, room and board.

Graduates earn a bachelor of science degree in one of 18 majors and a commission as an ensign in the Navy or a second lieutenant in the Marine Corps.

Applicants for the Naval Academy must be:

- A U.S. citizen.
- At least 17 years old and not yet 22 years old on July 1 of the year of admission.
- Unmarried, not pregnant and have no legal obligation to support a child or other individual.
- Of good moral character.
- Scholastically, medically and physically fit.

Active duty enlisted personnel must have an active duty pay base date one year prior to July 1 of the year of admission. Reserve enlisted personnel who are on active duty or are assigned to a drill unit must have a pay entry base date one year prior to July 1 of the year of admission.

Naval Academy Prep School

The Naval Academy Preparatory School, located in Newport, R.I., provides intensive instruction and preparation for the academic, military and physical training curricula at the Naval Academy.

NAPS convenes in August each year with the course continuing through May of the following year

for candidates seeking admission to the Naval Academy in July.

Applicants who are not selected for direct appointment to the Naval Academy are automatically considered for selection to NAPS. OpNav-Inst 1531.4 (series) contains information covering admission to the Naval Academy and NAPS. See your career counselor for details about these programs.

NROTC scholarship program

The Naval Reserve Officer Training Corps scholarship program leads to an appointment as an officer of the regular Navy or Marine Corps in the grade of ensign or second lieutenant. The NROTC programs are maintained to educate and train well-qualified men and women for careers as commissioned officers. The program is designed to provide the Navy with unrestricted line officers. Only persons reasonably sure of making their career in the Navy or Marine Corps should apply.

The NROTC scholarship provides tuition, books, fees and \$100-a-month subsistence. NROTC units are located at 66 colleges and universities in 34 states and the District of Columbia. Two- and four-year scholarships are available. NROTC midshipmen are members of the inactive reserve and do not receive pay and allowances. General eligibility requirements are:

- Be a U.S. citizen.
- Be under 25 years old on June 30 or the year of commissioning. Age waivers of up to 48 months are avail-

Paths to a Commission

able to those with prior active military service.

- Be a high school graduate or possess an equivalency certificate.

- Be physically qualified for unrestricted line service.

- Be morally qualified and possess officer-like qualities and character.

- Have no moral obligations or personal convictions which would prevent conscientious support and defense of the Constitution of the United States against all enemies.

- Have no record of military or civil offenses.

For application procedures, see OpNavNote 1533.

BOOST program

The Navy is engaged in a vigorous effort to ensure that opportunities for a career as a naval officer are open to persons who may have been educationally deprived, but who have demonstrated that they possess the fundamental qualities and desire necessary to gain a commission.

To help these individuals achieve their potential, the Navy developed the Broadened Opportunity for Officer Selection and Training program. BOOST prepares selected individuals for entrance into the Naval Reserve Officer Training Corps Scholarship Program or the U.S. Naval Academy.

A military staff provides physical fitness training, general military training and counseling for students. A civilian staff teaches the academic curriculum. General eligibility requirements are:

- Be an enlisted member on active duty in the Navy or Naval Reserve or a civilian agreeing to enlist for four years with BOOST school guarantee.

- Be highly motivated to become a commissioned officer and have the potential for professional growth if

given the educational opportunity.

- Have 36 months of active obligated service as of June 1 of the year BOOST training commences or agree to extend enlistment or active duty agreement to accumulate 36 months. Upon completion of BOOST, members must agree to accept four years of obligated commissioned service.

- To qualify for entrance to the Naval Academy upon completion of BOOST, the member must be unmarried and have no dependents.

- Be at least 17 years old. Prospective NROTC candidates must not have passed their 21st birthday on June 30 of the year entering BOOST. Candidates with active service in the armed forces may be granted a waiver on a month-for-month basis up to 27 months. Prospective USNA candidates must not have passed their 21st birthday on July 1 of the year entering BOOST.

- Be able to meet the physical requirements prescribed for unrestricted line officer programs.

- Have no record of conviction by court-martial or by civil court (other than for minor traffic violations).

- Meet high standards of personal conduct, character, patriotism, sense of duty and financial responsibility.

- Be a high school graduate or have a General Education and Development equivalency certificate.

- Have taken SAT or ACT within 12 months preceding application deadline.

- Be recommended by the commanding officer.

The BOOST program is conducted at the Naval Training Center, San Diego. Detailed information on this program is available in the annual BOOST OpNav Notice 1500.

Enlisted Commissioning program

The Enlisted Commissioning Program provides enlisted personnel, who have previous college credit, a full-time opportunity to complete requirements for a baccalaureate degree and earn a commission. General eligibility requirements are:

- U.S. citizenship.

- Be active duty in the Navy or Naval Reserve.

- Have at least four years time in service.

- Be at least 22 years of age but less than 31 by the time of commissioning.

- Be physically qualified for appointment in the unrestricted line.

- Have no record of conviction by court martial or civil court, other than minor traffic violations.

- Meet high standards of personal conduct, character, patriotism, sense of duty and financial responsibility.

- Have a cumulative grade point average of at least 2.5 on a 4.0 scale from all college-level courses completed.

- Be recommended by the commanding officer.

ECP officer candidates receive full pay and allowances, but must pay their own tuition and other school-related expenses. A six-year active service requirement will be incurred from the date of transfer to the ECP. Four years of active commissioned service will be incurred upon commissioning.

Chief Warrant Officer program

The Chief Warrant Officer program (along with the Limited Duty Officer program) is one of the primary enlisted-to-officer programs that does not require a college education. CWOs provide technical expertise at a relatively stable grade level in the officer structure. General eligibility requirements are:

Paths to a Commission

- Be a U.S. citizen.
- Be serving on active duty as a chief petty officer in the regular Navy, Naval Reserve or TAR program at the time of application.
- Be physically qualified for appointment to chief warrant officer.
- Be a high school graduate or possess a service-accepted equivalent.
- Have no record of conviction by court-martial nor conviction by civil court for offenses other than minor traffic violations for the two-year period immediately preceding Oct. 1 of the year application is made.
- Be recommended by the commanding officer.

Personnel in paygrades E-7 through E-9 must have completed at least 12 but no more than 24 years of active naval service immediately preceding Oct. 1 of the year application is made. Specific application procedures and additional information about the CWO program can be found in NavMilPersComInst 1131.1A.

Limited Duty Officer program

The Limited Duty Officer program is another enlisted-to-officer program that does not require a college education. The LDO meets the Navy's needs for officer technical managers. General eligibility requirements are the same as those of the chief warrant officer program with the following exceptions:

- Be serving as a petty officer first class or chief petty officer (E-6, 7 or 8). If the member is a PO1, he/she must have served in that capacity for at least one year immediately preceding Oct. 1 of the year of application.
- Have completed at least eight but not more than 16 years of active naval service on Oct 1 of the year application is made.
- PO1 candidates must complete

all performance tests, practical factors, training courses and service schools required for chief petty officer. Additionally, each PO1 applicant must successfully compete in the annual Navywide examination for advancement to CPO administered in January of the year of application.

1) A candidate whose final exam multiple is equal to or greater than that required to be CPO selection board eligible will be considered LDO selection eligible.

2) A PO1 is exempt from this requirement when authorization for advancement to CPO has been received by the commanding officer.

- Must be recommended by the commanding officer.

NavMilPersComInst 1131.1A contains specific application procedures and additional information about the LDO program.

Officer Candidate School

The Officer Candidate School program provides 16 weeks of officer candidate indoctrination and training at the Naval Education and Training Center, Newport, R.I. The program is open to male and female personnel except for the nuclear power program (submarine and surface) which is not open to women.

Enlisted applicants in paygrades E-4 and below who are designated officer candidates are advanced to E-5 upon reporting to OCS. Enlisted applicants in paygrades E-5 and above are designated officer candidates in their current paygrade. The curriculum includes intense naval science and human relations management courses. General eligibility requirements are:

- Be a U.S. citizen.
- Have a baccalaureate degree or higher from a regionally accredited

college or university.

- Be at least 19 years old but less than 29 years of age at time of commissioning. Waivers may be granted for prior active service and active duty personnel.

- Will be administered the Officer Aptitude Rating examination.

- Be physically qualified. Physical standards vary depending on career path designator.

- Current service members must be entitled to an honorable discharge; be serving on active duty in any rate and rating; and have at least six months of obligated service remaining on current enlistment upon receipt of orders to most schools.

- Must manifest leadership qualities, be of good moral character and have good personal habits.

- Married and single applicants must meet the dependency requirements outlined in OpNavInst 1120.2.

Service obligation for officers commissioned from OCS is four years active duty. All officers serve a total of eight years combined active/reserve duty.

Aviation Officer Candidate School

The Aviation Officer Candidate School program provides an avenue to commissioned service for male and female applicants interested in serving as naval aviators, naval flight officers, intelligence officers or aviation maintenance duty officers. Enlisted members selected for the program are designated officer candidates and advanced to E-5 upon reporting to AOCS in Pensacola, Fla.

Members desiring pilot training enter AOCS and after commissioning, continue their flight training for 12 to 18 months. Following successful completion of the additional

Paths to a Commission

flight training, candidates are designated naval aviators. Active duty obligation is seven years following designation.

Naval flight officer candidates, after commissioning, will continue their training leading to designation as NFOs. Active duty obligation is six years following designation.

Candidates selected for the Intelligence program and the Aviation Maintenance Duty Officer program will undergo additional training following commissioning and must serve on active duty for four years from date of appointment as ensign.

The general requirements for the aviation program are the same as for OCS except aviation applicants will be administered the Aviation Selection Test Battery. Also, pilots and NFOs must be less than 27 years of age at time of commissioning. Age waivers may be granted for fleet NFO applicants on a month-for-month basis up to 48 months for continuous active duty service.

Aviation Reserve Officer Candidate program

The Aviation Reserve Officer Candidate program has been reestablished for pilot and NFO male candidates and has a structure similar to the Marine Corps Platoon Leaders Class. The AVROC program is not available to active duty personnel. General entry requirements:

- Be a U.S. citizen.
- Be at least 17 years old but no older than 26 years at the time of commissioning. Waivers may be granted for NFO applicants who have prior active service on a month-for-month basis up to 24 months.
- Be enrolled in an accredited college in pursuit of a baccalaureate de-

gree having completed at least 60 semester or 90 quarter hours.

• Naval Junior ROTC members are eligible to be enlisted candidates upon graduation from high school. Prior to selection, NJROTC candidates must be accepted for enrollment at a regionally accredited college and must also be favorably recommended by the senior military instructor of the NJROTC unit.

• Receive an AQT/FAR score of 5/5 for the aviation track or 5/3 for the NFO track.

• Be physically qualified and aeronautically adapted in accordance with standards of the *Manual of the Medical Department*.

Candidates may enlist up to 12 months prior to beginning training at AVROC school. All AVROCs will attend two seven-week summer training sessions at Pensacola, Fla., during their sophomore and junior years of college. Pay will be that of an E-5 during all AVROC training. Longevity for pay purposes will be from date of enlistment into the AVROC program. Successful completion of aviation officer training will result in an ensign (13X5), U.S. Naval Reserve appointment.

The AVROC program's service obligation is seven years from date of designation for aviators and six years for NFOs. Three years obligation will be incurred from date of disenrollment for flight training unless released earlier by the Deputy Chief of Naval Operations (Manpower, Personnel and Training).

Naval Aviation Cadet Program

The Naval Aviation Cadet program has been reestablished for men and women pilot candidates from civilian and military sources. General eligibility requirements are:

- Be a U.S. citizen.

• Be at least 19 years old but no more than 24 years old prior to entering training. No waivers will be granted.

• Have completed at least 60 semester or 90 quarter hours at an accredited college or university. Must have completed sufficient studies to enter as juniors (third year) at that institution.

• Receive an AQT/FAR score of 5/5 or greater. No waivers are authorized.

• Be physically qualified and aeronautically adapted in accordance with standards of the *Manual of the Medical Department*.

Civilian candidates may be enlisted no more than 12 months prior to beginning training. Enlisted members of other branches of the military may be enlisted in the special grade of aviation cadet and placed in an inactive status in the Naval Reserve until reporting for training.

Aviation cadets are entitled to monthly basic pay at the rate of 50 percent of the basic pay for a commissioned officer in paygrade O-1 with two or less years of service. Allowances and other benefits will be as entitled for enlisted members in paygrade E-4.

All NavCads will attend 14 weeks of indoctrination training at Naval Aviation Schools Command, Pensacola, Fla. Successful completion of aviation training will result in an ensign (1315), U.S. Naval Reserve appointment. Service obligation is seven years from designation as a naval aviator.

After completing seven years of commissioned service, NavCads will automatically be screened for an opportunity to complete their baccalaureate studies under the College Degree Program and for augmentation into the regular Navy. NavCads

Paths to a Commission

pursuing a college degree will attend civilian institutions full time and receive full pay and allowances. Tuition and other school related expenses will be paid by the NavCad. Those not selected for degree completion or augmentation will be subject to continuation board/release from active duty as the needs of the Navy dictate.

Medical programs leading to a commission

Navy medicine offers an alternative to the administrative burden and expense of private practice for physicians, dentists and medical service officers.

Health Care Administration Section of the Medical Service Corps-Regular Navy — The medical service corps in-service procurement program is a continuing program which provides a path of advancement to commissioned officer status for senior regular Navy HM and DT personnel in paygrades E-6 through E-9 who possess the necessary potential, motivation and outstanding qualifications.

This program is extremely competitive. Enlisted personnel aspiring toward appointment in the medical service corps should begin preparation early in their careers through a sound self-improvement program. General eligibility requirements:

- Be a U.S. citizen.
- Be a member of the regular Navy serving as an HM or DT in paygrades E-6 through E-9.
- Be at least 20 years old. Applicants must not have reached age 35 as of Oct. 1 of the calendar year in which appointment can first be made.
- Meet the physical standards prescribed for officer candidates.

- Have no record of conviction by court martial for the four years preceding the date of application.

- Have a combined GCT/ARI score of at least 115.

- Be a high school graduate or equivalent.

- Have undergraduate course work, with a grade point average of at least 2.5 on a 4.0 scale, sufficient to complete within 24 months, the requirements for a baccalaureate degree which would contribute directly to successful performance in health care administration. For further information refer to SecNavInst 1120.8A.

- Pass a professional examination administered by the medical service corps. The exam tests knowledge of personnel administration, patient affairs, Navy customs and traditions, military justice and general Navy orientation in addition to pertinent disciplines.

Uniformed Services University of the Health Sciences — This four-year, accredited medical school accepts applications from members of the uniformed services who have at least a baccalaureate degree and the academic background to qualify for entry. Students serve in paygrade O-1 while in the program, regardless of previous rank, and are promoted to O-3 upon graduation. Graduates incur a seven-year service obligation (which begins after residency is completed), and receive a Doctor of Medicine degree. General eligibility requirements are:

- Be a U.S. citizen.
- Be between the ages of 18 and 28. Age waivers are granted for those with prior active military service on a year-for-year basis up to age 32.
- Hold a baccalaureate degree from an accredited college or university in the United States, Canada or

Puerto Rico.

- Must take the Medical College Aptitude Test prior to application.

- Meet the physical qualifications for commissioning.

Contact the USUHS Admissions Office at Autovon 295-3102 or commercial (301) 295-3102 for further details. (See January 1986 *All Hands*, Page 30.)

Medical Enlisted Commissioning Program — The medical enlisted commissioning program offers enlisted personnel of the HM or DT ratings the chance to become ensigns in the Nurse Corps by providing them the opportunity to obtain their bachelor of science degree in nursing. General eligibility requirements are:

- Be a U.S. citizen.
- Be able to complete the educational requirements and be commissioned before reaching their 35th birthday.
- Meet the physical standards for officer candidates as prescribed by the *Manual of the Medical Department*.
- Have at least three years active service as of Sept. 30 of the year of application.
- Have satisfactorily completed undergraduate course work sufficient to complete requirements for a B.S. degree in nursing within 36 consecutive months.
- Have a 2.5 grade point average on a 4.0 scale from all college courses completed.
- Be accepted to a baccalaureate program leading to a B.S. degree in nursing which is accredited by the National League of Nursing.

Selectees will receive full pay and benefits, but will be expected to pay their own educational expenses. For further information, see NavMil-PersComInst 1131.4. □

Mail Buoy

First days never change

I have just read the story in your October 1988 issue of *All Hands* concerning Seaman Recruit Timothy Williams reporting to USS *John F. Kennedy* (CV 67). It really hit home, as I did the same as a young RMSA reporting to "Super K" as we called the ship, in March 1978.

Yes, I am still with the Navy, but my thoughts often drift back to that time. Fresh out of Radioman "A" school, I quickly learned of the meaning of the phrase "needs of the Navy." My choice on my dream sheet also had been for a smaller ship.

I just want SR Williams to know that he shares the same feelings as do others of us who went before him and reported on board their first ship. By the way, I didn't think I would get to see the Great Pyramids either. But on the Med cruise of 1978-1979, I had that chance.

Next time I am in Norfolk, I'll have the best reason to visit JFK and an "old shipmate" of mine I have never met. Hang in there, Tim and good luck!

— RM2 Charles W. Johnson Jr.
Philadelphia

Eligible vs. selected

In the October issue of *All Hands* you published an interesting "Navy Currents" article on LDO program applications. I am an aviation LDO and was an FY88 in-service procurement board member. We reviewed some superb records submitted for consideration for selection to this prestigious program.

In the text of your article you state that "Petty officer first class applicants must be board *selected* for promotion to chief petty officer." This is not true. NavMilPersComInst 1131.1A states among other qualifications that, "Petty officer first class applicants must complete all eligibility requirements for E-7 except time-in-grade and must successfully compete in the annual Navy-wide examination for advancement to chief petty officer, receiving a final multiple equal to or greater than, the minimum final multiple for E-7 selection eligibility." This means that E-6 candidates must only be "board *eligible*," not "board *selected*" as stated. Your article may erroneously lead petty officers to

believe that only "chief selectees" are eligible to apply for the LDO program.

Everyone reads *All Hands* magazine. Please correct this error in your next issue so that future selection boards will continue to review the records of all *eligible* candidates.

— LCDR Ralph J. Boyer Jr.
CVWR-20
NAS Cecil Field, Fla.

• *You are correct. Our original source was in error. According to NMPC, LDO applicants who are petty officer first class must be CPO board-eligible. Thanks for bringing this to our attention. — ed.*

Civilians in Arlington

Many thanks to you and PH1 Chuck Mussi for the Veterans Day article and for featuring the VFW Honor Guard on the back cover.

The Honor Guard is one of a very few such civilian elements authorized to support ceremonial events in Arlington Cemetery.

— Wade W. LaDue
Veterans of Foreign Wars
Washington, D.C.

Disgusting carrots

I was appalled and disgusted at the picture accompanying the November 1988 article on Reenlistment Incentives. A carrot tied onto a fishing pole may be the feeling of some toward the incentives offered toward a naval career, but I have never felt that I was enticing someone to take actions against their own best interests.

We ask our people to endure long months of separation, work long hours and perform a variety of tasks from the technical to the mundane. The best of these young people must be retained if the Navy is to remain strong and ready. The incentives allow us some competition with private sector industries who truly envy our training programs and glean our veterans' experience.

The article itself was useful and I appreciate the information being so widely publicized. However, I do not feel that showing our brightest and best people

some additional benefits should be portrayed as a lure.

LCDR R. L. Clark
USS *John C. Calhoun* (SSBN 630)

Reunions

• **USS Aaron Ward (DD 483)** — Reunion planned April 6-9. Contact Ralph Hutchinson, 8430 Old Orange Park Road, Orange Park, Fla. 32073; telephone (904) 264-9356.

• **USS Loy (DE 160/APD 56)** — Reunion planned April 13-15. Contact Sam A. Metz, 2215 Bayberry Lane, Clearwater, Fla. 34623.

• **N.A.A.S. Barin Field (1942-present)** — Reunion planned April 15-16. OLF Barin Field, Foley, Ala. Contact Ms. Hattie Smith, P.O. Box 1117, Foley, Ala. 36536; telephone (205) 943-3291.

• **Yangtze River Patrol Association** — Reunion planned April 19-22. Charleston, S.C. Contact Roy W. Ferguson, 145 NE Fatima Terrace, Port St. Lucie, Fla. 34983; telephone (407) 878-3422.

• **USS Harrison (DD 573)** — Reunion planned April 19-22. Baton Rouge, La. Contact John Chiquoine, 323 Wellington Road, West Chester, Pa. 19380; telephone (215) 692-2627.

• **USS Daniel Boone (SSBN 629)** — Reunion planned April 23. Kings Bay, Ga. Contact LCDR Richard L. Cox, Executive Officer, USS *Daniel Boone* (SSBN 629), FPO Miami, 34090-2033; telephone C: (803) 743-5727/5749, A: 563-5727/5749.

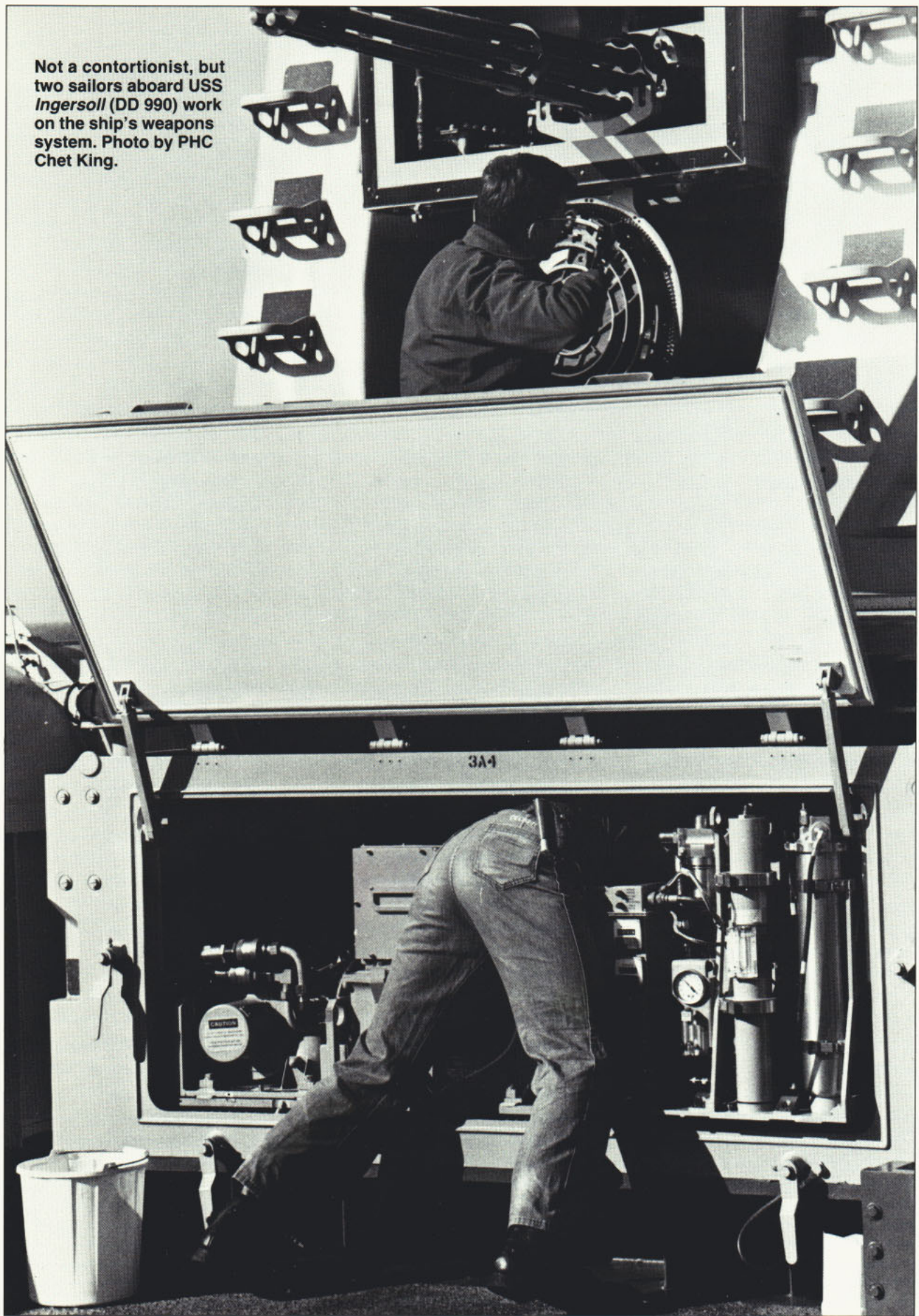
• **VPB 213, WW II PBM (MVSINRT) Squadron** — Reunion planned April 25-30. Anaheim, Calif. Contact Norman H. Maffit, 14709 Carlos Circle #70, Rancho Murieta, Calif. 95683.

• **PBY Catalina Association** — 2nd all hands reunion planned April 26-30. Anaheim, Calif. Contact James P. Thompson, 1510 Kabel Drive, New Orleans, La. 70131; telephone (504) 392-1227.

• **USS Stephen Potter (DD 538)** — 4th reunion planned April 27-30. Norfolk. Contact USS *Stephen Potter* Association, Don Huston, Pres., 2148 NW 197th Street, Seattle, Wash. 98177; telephone (206) 542-3495.

• **USS Torsk (SS 423)** — Reunion planned April/May. Baltimore Harbor, Md. Contact D. G. "Pete" Gunn, 3 Green Valley Lakes Road, Old Lyme, Ct. 06371.

Not a contortionist, but two sailors aboard USS *Ingersoll* (DD 990) work on the ship's weapons system. Photo by PHC Chet King.





Hoisting colors ● Page 30